BULLETIN

OF THE

TORREY BOTANICAL CLUB.

Vol. II.] New-York, January, 1871. **[No. 1.**

1. **The Bulletin.**—The present number commences the second year of our publication. The interest shown in it augurs well for the future. Thanks to its friends, (some warm ones outside of the club,) it will not fall very far short of paying expenses. When there is a permanent fund of from three to five thousand dollars established for it, as we count there will be some day, it will be ensured a permanency, and the size may be doubled at half the cost to subscribers. Meanwhile, it will be continued at the present rates. The subscription for 1871 is now due.

2. **Proceedings of the American Academy of Arts and Sciences for June, 1870.** Dr. Gray's Botanical Contributions contain much to interest those who study the flora of the region embraced in his Manual.

The first paper is a "Reconstruction of the Order Diapensiaceæ;" in which he groups together, *Pyxidanthera*, Michx.; *Diapensia*, L.; *Shortia*, Torr. & Gray; and *Galax*, L.

The second is a "Revision of the North American Polemoniaceæ." The name **Phlox ovata**, L., is resumed instead of *P. Carolina*, L.; and var. *nitida*, Benth., (*P. nitida*, Pursh) is transferred to **P. glaberrima**, L. *P. procumbens*, of the Manual, becomes **P. amœna**, Sims. **P. Stellaria**, Gray, is a new species "found only by the late Dr. Short, May 1st, 1829, on the cliffs of Kentucky River."

The third paper is a collection of "Miscellanea." Dr. Gray concludes that the American forms heretofore ranked by him under *Lycopus Europæus*, L., are distinct; hence the *var.* becomes the species **L. sessilifolius**, Gray; the var. *integrifolius*, **L. rubellus**, Mœnch; the var., **L. sinuatus**, Ell. **L. Europæus**, L., has been gathered near Norfolk, Va., and Philadelphia.

Viola renifolia, Gray, a new species, found by Mr. Paine in Oneida Co., and by others in other northern localities, grows "in company with *V. blanda*, which it closely resembles as to the flower, but the leaves are more like those of *V. palustris*; yet they are more strictly uniform, and are conspicuously beset with pale, soft and tender, lax hairs."

Desmodium Illinoiense, Gray, between *D. rigidum*, and *D. canescens*; and *Polygonum Hartwrightii*, Gray, "sedgy bogs, New York, from Herkimer to Yates Co., and Michigan," liable to be mistaken for *P. amphibium*, or *P. Careyi*; are new species.

We presume that students of the Manual will soon be supplied with the requisite particulars about these interesting changes and discoveries.

3. **Triosteum angustifolium**, L.—Mr. I. Coles, of Glen Cove, has brought us specimens of this species from that vicinity. We understand that some years ago Mr. Coles sent a specimen to the State Cabinet, where its identity was recognized by Dr. Beck. Bucks Co., Pa., has heretofore been supposed to be the northern limit of the species. Dr. Torrey has not included it in his list of plants to be looked for, appended to the State Flora. This discovery, and that of *Helianthus angustifolius* in the same district, (one of Dr. Torrey's *petenda*,) with those of *Eclipta procumbens* and *Polymnia Uvedalia* at Weehawken, and *Nabalus racemosus* in Westchester Co., and same others, give a fresh interest to our local Flora, and should arouse our collectors to renewed activity.

4. **Cornus stricta**, Lam.—The specimen with this label in the Herbarium of the Central Park, vid. § 83, Vol. I., turns out to be *C. alternifolia*, L.

5. **Winter Blossoms.**—On the 19th of Dec. the following plants were in bloom on Moore Farm, Newtown, L. I.: *Malva rotundifolia*, L., *Linaria vulgaris*, Mill., and the common Dandelion, *Taraxacum Dens-leonis*, Desf. The Linaria held out until the 26th. O. H. Perry.

Dandelions were seen by Mr. Pollard in bloom on Christmas day, in Central Park, and by another friend in another locality, Jan. 18th.

Mr. Perry also gathered at Newtown, on the 8th of January, the beginning of the cold snap, the blossoms of the Cabbage, Shepherd's-purse, and Chick-weed. *Brassica campestris*, L., *Capsella Bursa-pastoris*, Mœnch., *Stellaria media*, Smith. It will be noticed that all these late bloomers are foreigners. The ovules in the last three cases were apparently fertilized. Mr. Ruger writes us that roses were blooming in St. Paul's Church yard, December 14th.

6. I have to report the following additional localities:
Silene inflata, Smith; 102nd St. between 3rd and 4th Avenue.
Geranium pusillum, L.; court yard in front of No. 229 E. 10th St., in flower as late as Dec. 4th.
Lathyrus maritimus, Bigelow; Sea-bright, N. J. M. Ruger.

7. In June last I found by the roadside, in a district burned over five years ago, a *Tragopogon*, resembling the illustration of *T. undulatus*, in Loudon's "Encyclopædia of Plants," stated to be a native of the Crimea. D. Wilson, Glens Falls.

8. **Aster longifolius**, Lam.—You will find reported in Paine's Catalogue, p 40, as found by me in Westchester Co., some years since. I subsequently found it in other localities near Tarrytown. The same remark applies to **Eupatorium teucrifolium**, Willd. See Paine's Cat. p. 38. See also same for authority for inserting **E. hyssopifolium**, L., in a place up the River, though the actual locality was in the steep ascent of the river side of Hook (or Bull?) Mountain, above Nyack. *E. teucrifolium* grows there also. **Tussilago Farfara**, L. I have occasionally seen in Connecticut, near the Westchester Co. boundary; and have a very strong impression that I have met with it at Portchester, and New Rochelle, and perhaps at Eastchester. I have certainly seen it at Riverhead, L. I. I. H. Hall.

SOLIDAGO, L.—**S. squarrosa**, Muhl.; Palisades, common, *Austin.*—**S. bicolor**, L.; every where common: Var. **concolor**; from Jamaica, sparingly, east to Riverhead, L. I., also Plainfield, N. J., *Hall.*—**S. latifolia**, L.; Closter, common, *Austin;* New Durham swamp, *W. H. L.;* probably not uncommon elsewhere, though not reported.—**S. cæsia**, L.; every where common; N. Y.—**S. puberula**, Nutt.; "In sandy fields, New Jersey, near Amboy, *(Nuttall.)*" *Torr. Cat.;* Chatham, N. J., *W. H. L.;* Hempstead, *Bumstead;* Rockaway, L. I., *W. H. L.;* Tarrytown, *Hall;* said to have been found on N. Y. Island, if so, a specimen should be in the Local Herbarium.—**S. speciosa**, Nutt.; Harlem River, near Sixth Av.; Chatham, N. J., *W. H. L.*—**S. rigida**, L.; "On rocky hills, N. J.," *Torr. Cat.;* Palisades, rare, *Austin;* Harlem River with **S. speciosa**; Yonkers, *J. H. Pooley, Jr.;* Central Park, *R. & P.*—**S. sempervirens**, L.; common near salt water; N. Y.—**S. neglecta**, *Torr. & Gray;* not uncommon; N. Y., *O. W. M.;* Rockaway, Astoria, L. I.; Staten Island; Hackensack swamps, South River, N. J.; varies greatly, but well characterized; the upper leaves are sometimes remarkably broad and entire, and in well developed and mature plants the panicle is not narrow, but quite broad, and somewhat corymbose; the stem is either dark red, or straw colored.—**S. patula**, Muhl.; not uncommon; Astoria, *Bumstead;* Carlstadt, Chatham, New Durham, N. J.; Yonkers, &c., Westchester Co., *W. H. L., Hall;* N. Y., *O. W. M.*—**S. arguta**, Ait.; common: Var. **juncea**; Long Island, Staten Island, perhaps as common as the typical form.—**S. Muhlenbergii**, Torr. & Gray; Hart's Corners, Westchester Co., *Bumstead;* Chatham and New Providence, N. J., *W. H. L.*—**S. linoides**, Solander; Closter, N. J., *Austin.*—**S. altissima**, L.; very common; N. Y.—**S. ulmifolia**, Muhl.; Closter, *Austin;* Chatham, N. J., *W. H. L.;* N. Y., *O. W. M.*—**S. odora**, Ait.; common; N. Y.—**S. nemoralis**, Ait.; very common; N. Y.—**S. Canadensis**, L.; common; N. Y.: Var. **procera**; Hackensack swamps, *Allen.*—**S. serotina**, Ait.; common; N. Y., *O. W. M.*—**S. gigantea**, Ait.; common; N. Y.—**S. lanceolata**, L.; very common; N. Y.—**S. tenuifolia**, Pursh; Jamaica, and eastward, L. I.; New Durham swamp, *Austin.*

CHRYSOPSIS, Nutt.—**C. falcata**, Ell.; Suffolk Co., L. I., and Pine-barrens, N. J., not reported, but probably to be found, within our limits.—**C. Mariana**, Nutt.; New York Island, *State Flora;* Staten Island, *W. H. L;* Long Island.

INULA, L.—**I. Helenium**, L.; common; N. Y.; not common near Closter, N. J., *Austin;* rare on this part of Long Island, *Ruger;* Glen Cove, *Coles.*

PLUCHEA, Cass.—**P. camphorata**, DC.; common in salt marshes, N. Y.

BACCHARIS, L.—**B. halimifolia**, L.; common near salt water; N. Y., *W. H. L.;* no doubt grows on Staten Island, and in Westchester Co., but none reported from those districts.

POLYMNIA, L.—**P. Uvedalia**, L.; foot of cliffs near Weehawken Ferry, *Allen.*

IVA, L.—**I. frutescens**, L.; common near salt water; N. Y.

AMBROSIA, Tourn.—**A. trifida**, L.; common; N. Y., *O. W. M.*—**A. artemisiæfolia**, L.; very common; N. Y.

XANTHIUM, Tourn.—**X. strumarium**, L.; common; N. Y.: Var. **echinatum**; common near salt water. At Spuyten Duyvil were found the typical form, the variety, and an intermediate state; the variety apparently the first to mature, and the typical form the latest.—**X. spinosum**, L.; Staten Island; Hoboken; Glen Cove, *Coles;* N. Y., *O. W. M.*; Brooklyn, *Ruger.*

ECLIPTA, L.—**E. procumbens**, Michx.: Var. **brachypoda**; Red Bank, N. J., *Allen;* about a mile above the Weehawken Ferry, at the foot of the cliffs, in wet places, *W. H. L.*

HELIOPSIS, Pers.—**H. lævis**, Pers.; Closter, *Austin;* Central Park, *R. & P.:* Var. **scabra**; South Amboy, *Allen.*

RUDBECKIA, L.—**R. laciniata**, L.; common; N. Y.; not common on Long Island, *Ruger.*—**R. hirta**; common; not however, reported from New York Island, or Closter.

HELIANTHUS, L.—**H. annuus**, L.; waste grounds; Coney Island, *W. H. L.;* N. Y., *O. W. M.*—**H. angustifolius**, L.; Centreville, L. I., *Ruger*, vid. § 82, Vol. I.—**H. giganteus**, L.; common; N. Y.: Var. **ambiguus**; near Brooklyn, *State Flora.*—**H. strumosus**, L.; Chatham, N. J., *W. H. L.;* Closter, *Austin.*—**H. divaricatus**, L.; common; N. Y., *O. W. M.*—**H. decapetalus**, L.; Weehawken, New Durham, Closter, N. J.; N. Y.; probably common but not reported: Var. **frondosus**; rocky hills, *Torr. Cat.*—**H. tuberosus**, L.; Woodside, Bergen Point, N. J.; Staten Island, *W. H. L.;* N. Y., *O. W. M.;* Jamaica, *W. H. L.*

ACTINOMERIS, Nutt.—**A. squarrosa**, Nutt.; "In meadows, New Jersey, perennial, Aug., yellow." *Torr. Cat.;* an error?

CORREOPSIS, L.—**C. tinctoria**, Nutt.; N. Y., *O. W. M.*—**C. trichosperma**, Mchx.; common in swamps; New Jersey; Long Island.

BIDENS, L.—**B. frondosa**, L.; common; N. Y.; heads radiate, Chatham, N. J., *W. H. L.*—**B. connata**, Muhl.; common; N. Y., *O. W. M.*—**B. cernua**, L.; Woodside, N. J., *W. H. L.;* "Low grounds and ditches," *Torr. Cat.;* not rare in New Jersey, *State Flora; Le Roy.*—**B. chrysanthemoides**, Michx.; common; N. Y.—**B. bipinnata**, L.; very common; N. Y.

HELENIUM, L.—**H. autumnale**, L.; common; New Jersey; Westchester County; Long Island, *Ruger.*

GALINSOGA, Ruiz & Pav.—**G. parviflora**, Cav.; streets of N Y.; Staten Island; Bergen Point; Astoria, South Brooklyn, *Ruger.*

MARUTA, Cass.—**M. cotula**, DC.; too common; N. Y.

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Local Herbarium, 3 E. 33d St.—Editor 224 E. 10th St.

ANTHEMIS, L.—A. arvensis, L.; quite common ; N. Y.

ACHILLEA, L.—A. Millefolium, L.; very common ; N. Y.; the rose-colored var. in Westchester County, *Le Roy, Pooley.*—A. Ptarmica, L.; "Swamps, New York," *Eddy in Torr. Cat.*, but not since reported.

LEUCANTHEMUM, Tourn.—L. vulgare, Lam.; too common ; N. Y.—L. Parthenium, Godron ; near Woodside and Centreville, L. I., *Ruger;* Central Park, N. Y., *R. & P.;* N. J., *Austin.*

TANACETUM, L.—T. vulgare, L.; common ; N. Y.: Var. crispum ; not uncommon ; Ridgewood aqueduct, beyond Centreville, *Ruger.*

ARTEMISIA, L.—A. caudata, Michx.; Long Island, *State Flora;* Sandy Hook, N. J., *Ruger.*—A. vulgaris, L.; Rye, near R. R. depot, *Ruger ;* Glen Cove, *Coles* —A. biennis, Willd.; Stapleton, Staten Island, *Congdon,* vid. § 79, Vol. I.—A. Absinthium, L.; N. Y., *O. W. M.*

GNAPHALIUM, L.—G. decurrens, Ives ; Chatham, N. J., *W. H. L.;* Glen Cove, *Coles.*—G. polycephalum, Michx.; quite common we believe, but have few memoranda about it ; *Torr. Cat.;* Chatham, N. J., *W. H. L.;* Central Park, *R. & P.;* pretty common on L. I., *Ruger ;* Glen Cove, *Coles.*—G. uliginosum, L.; common ; N. Y.—G. purpureum, L.; Staten Island, Chatham, N. J., *W. H. L.;* Long Branch, *Ruger ; Torr. Cat.; Le Roy.*

ANTENNARIA, Gærtn.—A. margaritacea, R. Brown ; common ; N. Y., *O. W. M.*—A. plantaginifolia, Hook.; common ; N. Y.

FILAGO, Tourn.—F. Germanica, L.; Staten Island, *State Flora.*

ERECHTHITES, Raf.—E. hieracifolia, Raf.; very common ; N. Y.

SENECIO, L.—S. vulgaris, L.; old grounds ; N. Y.; Fort Lee, *W. H. L.;* Snake Hill, *Le Roy ;* near Cooper's Glue Factory, *Ruger ;* Flushing, Astoria, etc.—S. aureus, L.; Bloomingdale, *Torr. Cat.;* Morristown, N. J., *W. H. L.;* Train's meadows, plentiful, Maspeth, not plentiful, *Ruger ;* Glen Cove, *Coles ;* and probably common elsewhere though not reported; Var. Balsamitæ ; "Wet meadows, along brooks, N. J.," *Torr. Cat.*

CENTAUREA, L.—C. Cyanus, L. ; escape ; L. I.; N. Y., *O. W. M.;* wheat fields, Yonkers, *Pooley.*—C. Melitensis, L., referred to § 79, Vol. I., was evidently planted.

CIRSIUM, Tourn.—C. lanceolatum, Scop.; very common ; N. Y.—C. discolor, Spreng.; common ; N. Y., *O. W. M.*—C. muticum, Mchx.; common ; N. Y.—C. pumilum, Spreng.; common ; N. Y., *Nuttall.* —C. horridulum, Michx.; "Sandy fields, particularly near the salt water ; rather common on Long Island." *State Flora ;* Glen Cove, *Coles ;* Staten Island, *Ruger.*—C. arvense, Scop.; too common ; N. Y.

ONOPORDON, Vaill.—O. acanthium, L.; near Patterson, *W. H. L.;* Inwood, *Le Roy.*

LAPPA, Tourn.—L. officinalis, Allioni ; Var. major; very common ; Central Park, *R. & P.*

CICHORIUM, Tourn.—C. Intybus, L.; common ; N. Y.; Glen Cove, *Coles*

KRIGIA, Schreber.—K. Virginica, Willd.; common; N. Y.; Glen Cove, *Coles;* not abundant on this part of L. I., *Ruger.*

CYNTHIA, Don.—C. Virginica, Don; common in N. J.; Fordham, Westchester Co., and Glendale and Locust Av., L. I., *Ruger.*

CREPIS, L.—C. virens, L.: Var. diffusa; Greenwood Cemetery, vid. § 50, Vol. I.

9. **Herbarium Suggestions.**—No. I. *Size of genus-covers and sheets for species.*—It is evident that some uniform standard ought to be selected by botanists for the size of the sheets of paper to which their dried specimens of plants are attached, and of the genus-covers containing the same, for this would greatly facilitate exchange from one herbarium to another. At present, however, no such standard is recognized, as is evident on consulting botanical works or in looking over the herbaria of different collectors.

Writers on botany usually pass the subject over, regarding it, apparently, as *infra dig.* Taking up half a dozen authors, whose works happen to be within reach, I find only two who mention it:—

Balfour, Manual of Botany, 1855, p. 658, recommends that the sheets for species should be 17 inches in length and 10½ in breadth.

Prof. Alphonso Wood, Botanist and Florist, 1870, says the paper should at least be 14 by 11 inches.

Dr. Torrey's sheets, which I have measured in his herbarium, are fifteen and one-quarter by eleven inches.

Dr. Gray's sheets for species are sixteen and four-tenths by eleven and one-half inches; his genus covers are sixteen and four-tenths by twelve inches. It may be noticed, in passing, that this relative proportion is objectionable, because no difference is made in height between the species and genus sheets, and, although packing a genus cover will not diminish its height, yet, in the necessary hurry of insertion, species sheets will project a little above or below, and in time will show a discolored margin, due to exposure to air and dust, which liability can practically be obviated only by allowing a difference in height as well as width.

Again, if report be true, an eminent botanist, on commencing his collection many years ago, ordered paper of a certain size which he had carefully selected. His stationer made a mistake of half an inch or so; the paper thus cut was too valuable to be thrown away; and the error has been perpetuated in all subsequent purchases, and has been followed by many of his pupils!

Whatever size is adopted, in commencing a collection, it must, almost necessarily, be retained in future, so that the following suggestions on this score can only be of use to younger botanists.

The size which I would propose as a standard, and one which I have tested by many years experience, is, in the extreme measurement of all outside covers containing sheets of dried specimens, eighteen inches in length by twelve inches in breadth; and the size of the enclosed sheets just one-half inch less each way. Your genus-covers, when folded and ready for use, will then measure a foot and a half in height by a foot in width. Your sheets to which your plants are attached will measure seventeen and a half inches

in height by eleven and a half inches in width. These dimensions possess the following recommendations :—

1st,—They are simple and easily recalled to mind.

2nd,—They are adequate for all plants which you may wish to put up yourself, and will include almost all mounted specimens which you are likely to receive from others. The only exception to this that I know of, was a collection of mounted ferns, imported by our lamented friend Denslow from Mr. Smith, of London, whose sheets were an inch or two larger each way.

3rd,—Most of the paper as found in the market can be cut up into these dimensions without much loss or waste. Owners of very large collections can order their paper direct from the manufacturers, of the exact size they desire, but this is impracticable for small quantities, and hence the present consideration is important.

I would remark that your stationer may tell you, that he can only cut certain paper, which you have selected, an eighth of an inch less in one of its dimensions than the size asked for ; thus, in order to avoid a curling or bending of the margin, it may be necessary to have your folded genus covers eleven and seven-eighths inches wide, instead of fully twelve inches, and this slight difference may be disregarded, as it is more than allowed for in the size of the sheets for species.

In putting up mosses, there are two plans which are sanctioned by different botanists. Some, like Prof. A. Gray, attach them to sheets of the same size as they do other plants. The advantage of this is, that the sheets will fit into the same pigeon holes as those containing the phænogamous plants ; the disadvantage is, that, since most mosses are small, a large part of the sheet will often be wasted room.

Other botanists use smaller sheets for mosses, in which case it is well to cut the ordinary genus covers and the sheets for species into four parts, and this will give a convenient size, and enable you to use the paper you have on hand. By this plan, however, smaller pigeon holes or paste-board boxes will be required. Every botanist must make his own choice between these two methods.

Some reader may like to know what quality of paper to select both for covers and sheets. I would say in reply, that I have obtained my paper recently from Asa L. Shipman & Son, Stationers, 25 Chambers St., N. Y., who have samples of the quality of paper used by Prof. Gray and Prof. Eaton, kindly furnished me by the latter. F. J. B.

10. **Baccharis halimifolia**, L.,—grows on the edge of salt marsh, inside of Throg's Neck, quite near Fort Schuyler ; also along the southern edge of the salt marsh through which the Pocantico empties into the Hudson. In both places also grow **Iva frutescens**, L., and **Helenium autumnale**, L. **Solidago tenuifolia**, Pursh, I have found in several places back from the river, all the way from Dobb's Ferry to Sing Sing. **Helianthus decapetalus**, L., is frequent in Westchester Co., but by no means as common as in Central New York. **H. tuberosus**, L., either as a scape or otherwise, I have frequently seen in various places in Westchester Co. and on Long Island.

11. **Solidago elliptica,** Ait.—John Carey wrote me, years ago, that he found this growing in the Hackensack meadows, near N. Y.

S. T. OLNEY.

Carex subulata, Michx.—John Carey cites in Gray's Manual, ed. 1, 1848, Long Island. He wrote that Long Island should have been Rhode Island. Torrey in N. Y. State Flora, II., 392, also cites "deep cedar swamps, Long Island" for this species. There are no specimens in his Herbarium from Long Island: there are from Rhode Island. Is it a Long Island species? S. T. O.

Mr. Olney has kindly sent us specimens of *Solidago elliptica* from Rhode Island, and extends the offer of the like liberality to others of the club, as far as his supply of specimens permits. We were surprised at the appearance of the leaves, which, without the hairiness, have the general aspect of those of *S. altissima;* the panicle is narrow, like that of *S. neglecta.* It has probably been mistaken for the former, and may be found again in this region. We have *Carex subulata* from Staten Island.

12. **Spirodela.**—Prof. Hegelmaier writes, in reference to "Dr. Engelmann's full and exact analysis of the American Spirodela: I think it, would be very superfluous on my part to give a description, which would be in a great measure a mere repetition of his words. An article respecting some anatomical details, which can not well be treated without a greater lithographic plate, it would perhaps be best to give to the Botanische Zeitung."

"In the dried specimens first received, the ovary was always 1-ovuled, with one exception in which it was 2-ovuled. In the specimens preserved in alcohol, I found almost the half of the ovaries 2-ovuled. Probably the latter specimens have been collected some time after the former ones, and the ovules from some unknown cause have failed in the first period of the blossom. [The alcoholic specimens were gathered later, and allowed to mature in the house.] In one case even a half ripe fruit contained two young but well developed seeds, and there is little doubt that they were both upon the point of ripening. It is hardly necessary to remark, that these facts confirm the opinion already expressed by Dr. E., that the plant is a depauperated form of *S. polyrrhiza.*"

"The exostome of the ovules does not seem to me to be closed at the time of blossoming, but to be open as far as in the species of Lemna whose ovules are anatropous or hemianatropous. Naturally, after the fecundation, the outer integument increases quickly so as to close the micropyle. The epidermis of the anthers contains a number of cells filled with the same pigment which occurs in certain cells of many parts of these plants.

Tübingen, Jan. 17th, 1871."

13. **Notice to Correspondents.**—We are in want of reports from Closter, New York, and other quarters.

Terms—*One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.*

Local Herbarium, 3 E. 33d St.—Editor 224 E. 10th St.

14. **"Herbarium Suggestions."**—Our friend, Dr. Gray, has kindly sent me some criticisms and suggestions with regard to the article that appeared in the last number of the Bulletin, under the above heading.

Dr. Gray says: "I intended that my Genus covers should be sixteen and a half inches long; the paper for species sixteen and three-eighths. I find that as much difference in length as will work well when the sheets are rather numerous in the same cover, and when they are shoved—as is usually done—quite back into their compartments. Your space of one-half inch will all be found in front, i. e., at the bottom margin. This does not look well, and the projecting margins are liable to become curled or dog-eared."

[I have not myself experienced any difficulty of this kind. *F. J. B.*]

Dr. Gray adds: "Again I find it best to have the Genus covers first folded in quarter quires or so, and then trimmed to twelve inches on the front edge. This makes the inner sheets a little narrower and with a sharper fold on the back,—advantages for small or monotypic genera, for which I reserve them; while the outer sheets, by their slightly greater width and the rounded fold at the back, are adapted for larger genera or sections." F. J. B.

15. **Characeæ.**—For some years I have been much interested in the study of our Characeæ, and especially since I have obtained the beautiful specimens issued by Braun, Rabenhorst, & Sitzenberger, by means of which I have been enabled to identify some species. I have received a few from Mr. C. C. Frost of Brattleboro, Vt., acurately named; and Mr. Le Roy has given me some specimens he has picked up. These, with my own collections, make but a beginning; and I should he glad to receive these interesting plants from all parts of the country, especially if collected when in fruit, or male and female plants when, as often, they are dicœcious. In Europe as many as *fifty* different species, including a great number of varieties, are known, nearly one third of which belong to the genus Nitella. I have received great help from Prof. A. Braun of Berlin, who has named many species for me, and determined one new and beautiful variety—

1. **Nitella acuminata**, A. Br., var. **subglomerata.**—I have gathered at Morristown, N. J. Prof. Braun says it is not rare in the warmer parts of the United States, but is not found at all in Europe.
2. **Nitella polyglochin**, A. Br., var. **microcarpa.**—I have probably from New Jersey; this is not found in Europe.
3. **Nitella tenuissima**, Desv.—was collected by Mr. Le Roy at Peekskill on the Hudson.
4. **Nitella syncarpa**, Thuill.—I have received from Mr. Frost of Brattleboro, Vt.
5. **Nitella capitata**, Nees ab E.—is quite common in the small streams on Long Island, appearing in the spring (as in Europe).
6. **Nitella flexilis**, L.—I have received from Mr. Frost. The variety **subcapitata** I find very abundant in Litchfield Lake, Ct.

7. **Nitella mucronata**, A. Br.—From Mr. Frost.
8. **Nitella gracilis**, Sm.—From Mr. Frost.
9. **Nitella batrachosperma**, A. Br.—From Mr. Frost.
10. **Chara coronata**, var. **Schweinitzii**, A. Br.—I have gathered in New Jersey, and have also received from Mr. Frost.
11. **Chara crinita**, Wallr.—I gathered in 1869, in brackish water Montauk Point, L. I. I found only female specimens. Prof. Braun says it has not before been known from America, and that in Europe the male plants are exceedingly rare and in the Baltic sea altogether wanting. He was interested in finding the next species mixed with it, as they are always associated in Europe.
12. **Chara aspera**, Willd.—with the last.
13. **Chara fragilis**, Desv. (*C. vulgaris*, L.)—common in Litchfield Lake, Ct., and in various localities; sent by Mr. Frost.
14. **Chara gymnopus**, var. **elegans**, A. Br., in litt.—found at Peekskill, N. Y., by Mr. Le Roy. Prof. Braun says that it approaches the var. *trichacantha* from Texas, S. C., and Florida. T. F. A.

16. **Gnaphalium polycephalum**, Mchx.—I have seen now and then in Westchester Co., but I think not very abundantly. I think it prefers a barren *limestone* soil; at least I have always seen it flourishing best in such soil.

Senecio aureus, L.—not the luxuriant typical form, but two forms rather depauperate, one of which I have marked var. **Balsamitæ**, I have found in considerable quantities on Staten Island.

I. H. H.

17. Judge G. W. Clinton, of Buffalo, had recently occasion to appeal to the Post Master General in relation to the postage of botanical specimens, and received the following decision.

"A liberal construction of the 222d section of the postal law would justify sending *Botanical Cuttings* at a lower rate of postage than letter rates, viz, 2 cents for each four ounces or fraction thereof, prepaid by stamps."

Of course the sender must vouch for their being no manuscript, and fasten the bundle by strings, or, if pasted, leave the end open, superscribing, "Botanical specimens."

18. **Anthers of Lemnæ.**—That the two anthers should expand at different times is very natural, as they represent two distinct flowers; that I always see: but I was surprised to find always the anterior or first stamen developed in my specimens of Spirodela from Staten Island; and now, since I learn that they were artificially raised, I suggest a better explanation than my previous one, viz, that from want of vitality under the circumstances only one, the first one, opened. In Lemnæ collected out of doors, "wild," I find sometimes one, sometimes the other fully developed; and, if the second or posterior one is just opening, the other is always effete and elongated, a condition which I have never seen in this Spirodela. After shedding pollen the second also elongates, as in water Callitriches. It will be interesting to find what time inter-

venes, in fair weather, from the developement of one stamen to that of the other in Lemnæ. G. ENGELMANN.

The expression "artificially raised" is perhaps too strong to express the condition of plants found to be in a flowering stage and placed in a dish for a few days to allow them to show their blossoms. EDS.

19. **Exchanges.**—Chas. Keck, Ems, Upper Austria, desires to exchange European for American plants, through the proffered agency of the Smithsonian Institute.—A. H. Curtiss of Liberty, Virginia, wishes to exchange a large number of species for an equivalent made up by one or several N. Y. botanists. We have his marked catalogue.—Dr. I. S. Moyer, of Quakertown, Pa., wants U. S. plants; we have a partial catalogue.—Jacob Hammond, Victor, N. Y., local. —E. L. Hankenson, Newark, N. Y., especially Salicaceæ, Cyperaceæ, and Filices. Dr. Geo. Engelmann, of St. Louis, desires "an authentic native living plant (or joint) if possible with fruit," of our New York Opuntia, or Prickly Pear.

20. **To Correspondents.**—We are deficient in reports from Westchester Co., and New Jersey, especially the district between the Raritan and Ocean. We request the friends of the cause, in all directions, to search out the botanists, and bring them into communication with us. This year we hope to see a considerable accession to the number of our subscribers.

21. **Publications received.**—1. *Musci Appalachiani: Tickets of Specimens of Mosses collected mostly in the Eastern Part of North America*, by C. F. AUSTIN, comprises a number of new species, and one new genus, **Micromitrium**. We hope to hear from the Cryptogamists of the vicinity.—2. *Archives of Science, and Trans. of the Orleans Co. Soc. of Nat. Sci., Newport, Vt., Vol. I., Nos.* 1 & 2. Among the contents are a general notice of the Flora of Vermont, by Prof. George H. Perkins; and a list of the Vermont Equisetaceæ and Filices, by Chas. C. Frost. Among the ferns, we notice the rare *Pellæa gracilis*, Hook., and *Woodsia glabella*, R. Brown.

22. **Spring.**—*Acer dasycarpum*, Ehr., was in full bloom in Brooklyn, Mch. 13th. J. S. M.

23. **Solidago elliptica**, Ait.—Mr. Olney has kindly sent his duplicates of this species to Dr. Torrey, for the benefit of the Club. In comparing the leaves in shape and texture with those of *S. altissima*, L., we meant not to imply any doubt of its affinity to *S. neglecta*, Torr. & Gray.

HIERACIUM, Tourn.—**H. Canadense**, Mchx.; New Jersey, Closter, *Austin;* Long Island, Union and Woodhaven, *Ruger*, Glen Cove, *Coles;* Westchester Co., *W. H. L.*—**H. scabrum**, Mchx.; N. Y., *O. W. M.;* common; but we have no report from Westchester Co. except the general statement in the State Flora, that it is "common in the vicinity of N. Y."—**H. Gronovii**, L.; common; but not re-

ported from N. Y., Westchester, or the Sixth District, between the Raritan and the Ocean.—**H. venosum**, L.; common, N. Y.—**H. paniculatum**, L., common; N. Y.

NABALUS, Cass.—**N. albus**, Hook.; common; N. Y., *O. W. M.;* we believe this to be our most usual form, though very few report it, perhaps confounding it with the next: Var. **Serpentaria**; *Le Roy;* Chatham, N. J., *W. H. L.*—**N. altissimus**, Hook.; not uncommon in rich woods; N. Y., *O W. M.;* Central Park, *R. & P.;* Glen Cove, *Coles;* Chatham, N. J., and Westchester Co., N. Y., *W. H. L.*—**N. Fraseri**, DC.; Babylon, L. I., *Merriam;* Closter, common, *Austin;* Chatham, common, Bergen Point, South River, N. J., *W. H. L.:* Var. **integrifolius**; Long Island, near New York, *State Flora;* Long Hill, N. J., *W. H. L.*—**N. racemosus**, Hook.; Hackensack meadows; Scarsdale, Westchester Co., *J. S. Meriam*, vid. § 91, Vol. I.; "used to be quite common about Closter, have not noticed it of late," *Austin.*

TARAXACUM, Haller.—**T. Dens-leonis**, Desf.; everywhere; N. Y.

LACTUCA, Tourn.—**L. Canadensis**, L.; very common; N. Y.: Var. **integrifolia**, Torr. & Gray; vicinity of New York, *State Flora;* Yonkers, *Pooley;* East New York, L. I., Chatham, N. J., *W. H. L.:* Var. **sanguinea**, Torr. & Gray; vicinity of New York, *State Flora.*

MULGEDIUM, Cass.—**M. acuminatum**, DC.; Weehawken, *Torr. Cat.;* Closter, common, *Austin; Le Roy;* near New York, *State Flora.*—**M. leucophæum**, DC.; "In woods near the Little-Falls of the Passaic," *Torr. Cat.* "Common on Long Island," *State Flora;* Chatham, N. J., abundant, *W. H. L.*

SONCHUS, L.—**S. oleraceus**; N. Y., *O. W. M.;* Morris Co., N. J., *Austin; Torr. Cat.;* cultivated grounds and road sides, 79th St., Kingsbridge, Flushing, Hoboken, *W. H. L.;* Brooklyn, *Merriam.*—**S. asper**, Vill.; N. Y., *O. W. M.;* Yonkers, *Pooley;* Brooklyn, Hoboken, *Merriam;* New Durham, Astoria, *W. H. L.*—**S. arvensis**, L.; "Banks of the Hudson, Greenwich," *Torr. Cat.;* Staten Island, Long Island, Bergen Point, *W. H. L.;* Yonkers, *Pooley.*

LOBELIACEÆ.

LOBELIA, L.—**L. cardinalis**, L.; common; N. Y.; Babylon, L. I., brook sides, a beautiful white and flesh colored variety, 1868, *Merriam.*—**L. syphilitica**, L.; common; N. Y.—**L. inflata**, L.; common; N. Y.—**L. spicata**, Lam.; common; N. Y.—**L. Nuttallii**, Rœm. & Sch.; Long Island, Jamaica, *Shœffer in State Flora*, Babylon, *Merriam;* New Jersey, South Amboy, &c.—**L. Kalmii**, L.; "On the Island of New York," *Le Conte in Torr. Cat.:* not since reported, but may possibly grow on the calcareous rocks on the North end of the Island, where Mr. Denslow used to find *Camptosorus*, Link.—**L. Dortmanna**, L.; Rockland Co., *Austin.*

Terms—*One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.*

Local Herbarium, 3 E. 33d St.—Editor 224 E. 10th St.

CAMPANULACEÆ.

CAMPANULA, Tourn.—**C. rotundifolia**, L.; Babylon, L. I., Weehawken, *Merriam;* Palisades, *Austin;* "on the banks of rivulets among rocks," *Torr. Cat.;* clefts on Hudson R. R. R. between Dobb's Ferry and Sing Sing, also on mountain above Nyack, *Hall.*—**C. aparinoides**, Pursh; not uncommon, though not reported from N. Y., or the Ocean district of N. J.—**C. Americana**, L.; *Le Roy;* roadsides, Flushing, *Allen.*—**C. rapunculoides**, L.; but rather rough than smooth, is well naturalized on Long Hill, Chatham, N. J., *W. H. L.*—**C. Medium**, L.; a scape in several places in Westchester Co. (Greenburgh) and Connecticut, *Hall.*

SPECULARIA, Heister.—**S. perfoliata**, A. DC.; common; N. Y.

ERICACEÆ.

GAYLUSSACIA, H. B. K.—**G. dumosa**, Torr. & Gr.; Babylon, L. I., *Merriam:* Var. **hirtella**; Staten Island, *Le Roy;* Squam, N. J., *W. H. L.*—**G. frondosa**, Torr. & Gr.; common; N. Y.—**G. resinosa**, common; N. Y.

VACCINIUM, L.—**V. Oxycoccus**, L.; Otter Pond, Closter, *Austin;* New Durham swamp, *Torr. Cat.*—**V. macrocarpon**, Ait.; common on Long Island and in New Jersey; Closter, scarce, *Austin;* not reported from New York, Westchester, or Staten Island.—**V. stamineum**, L.; common in New Jersey, and Westchester Co.; N. Y., *Torr. Cat.;* Central Park, *R. & P.;* not reported from Staten Island or Long Island.—**V. Pennsylvanicum**, Lam.; common, *Torr. Cat.;* Long Island, Glen Cove, *Coles*, Babylon, *Merriam*, &c.; Central Park, *R. & P.;* scarce about Closter, *Austin;* Staten Island, *Hall.*—**C. vacillans**, Solander; "common in the vicinity of New York, and along the Hudson," *State Flora;* N. Y., *W. H. L.;* Central Park, *R. & P.;* Staten Island, *W. H. L.;* common at Closter, *Austin.*—**V. corymbosum**, L.; very common with its varieties; N. Y: Var. **glabrum**; Secaucus, Staten Island: Var. **amoenum**, *Torr. Cat.;* Staten Island, *W. H. L.:* Var. **pallidum**; Secaucus, *Allen:* Var. **atrococcum**; abundant in Secaucus swamp, also on Staten Island, *W. H. L.*

CHIOGENES, Salisb.—**C. hispidula**, Torr. & Gray; *Le Roy;* "In the cedar swamp, New Durham, N. J., *Cooper*, v. v." *Torr. Cat.*

ARCTOSTAPHYLOS, Adans.—**A. Uva-ursi**, Spreng.; Palisades, rare, *Austin;* Patterson falls, *Cooper in Torr. Cat.;* Pine barrens of N. J., *Torr. Cat.;* Ridgewood aqueduct, near the Jewish cemetery, *Ruger;* and abundant eastward on L. I.

EPIGÆA, L.—**E. repens**, L.; abundant in the sandy woods of N. J. and L. I., also found on Staten Island, and the banks of the Bronx, vid. §§ 5 and 23, Vol. I.; various places in Westchester Co., *Hall.*

GAULTHERIA, Kalm.—**G. procumbens**, L.; common to all our districts, except perhaps Staten Island; but rare about Closter, and in Rockland Co., (abundant in South Jersey and Orange Co.,) *Austin;* Canarsie and eastward, L. I., *Merriam, Coles;* Inwood, N. Y., *Le Roy;* rose colored variety near Patchogue, L. I., *Hall.*

LEUCOTHOË, Don.—**L. racemosa**, Gray; N. Y., *Torr. Cat.;* Central Park,

R. & P.; L. I., New Lots, *Ruger*, Canarsie and east, *Merriam*, Closter, *Austin;* New Durham; Secaucus; Staten Island.

CASSANDRA, Don.—**C. calyculata**, Don; New Jersey, *Torr. Cat.;* Secaucus swamp, *W. H. L.;* peat bogs, Closter etc., abundant in South Jersey, *Austin;* Babylon and east, L. I.

ANDROMEDA, L.—**A. polifolia**, L.; peat bogs, Budd's Lake, *Austin.*—**A. Mariana**, L.; N. J., Closter, *Austin*, S. Amboy, *Torr. Cat.*, Red Bank etc.; abundant on Long Island; Central Park, *R. & P.;* Staten Island.—**A. ligustrina**, Muhl.; common; N. Y.

CLETHRA, L.—**C. alnifolia**, L.; common; N. Y.

KALMIA, L.—**K. latifolia**, L.; common; N. Y.; not in this immediate vicinity on Long Island, *Ruger;* but abundant a little farther east, *Coles, Merriam.*—**K. angustifolia**, L.; common, but not reported from N. Y.

AZALEA, L.—**A. viscosa**, L.; common; N. Y.—**A. nudiflora**, L.; common; N. Y.

RHODODENDRON, L.—**R. maximum**, L.; New Durham and Secaucus swamps; Big Swamp, near Chatham, N. J., *W. H. L.;* Staten Island, *Torr. Cat.;* South Jersey; near Babylon, etc., L. I., *State Flora.*

RHODORA, Duhamel.—**R. Canadensis**, L.; Sam's Point Mountain, *Austin.* [extra-limital?]

PYROLA, Tourn.—**P. rotundifolia**, L.; N. Y.; common.—**P. elliptica**, Nutt.; common; not reported from N. Y.—**P. chlorantha**, Swartz; Closter, *Austin.*—**P. secunda**, L.; Closter, *Austin;* open sandy woods, N. J., *Torr. Cat.;* about Jamaica pond etc., L. I., *Ruger.*

CHIMAPHILA, Pursh.—**C. umbellata**, Nutt.; common; N. Y.—**C. maculata**, Pursh; common; N. Y.

MONOTROPA, L.—**M. uniflora**, L.; common; N. Y.—**M. Hypopitys**, L.; common, but New York and Staten Island not reported. The var. **rubra** grows in the same grounds with the lighter colored and smaller form, but springs up much later in the season. Mr. Greene, of Frostburg, Md., notices that it has a peculiar odor resembling that of *Polygala Senega.*

Pterospora, Nutt., was found by Dr. Mead (State Flora) in a wood north of Peekskill, rather beyond our limits; and *Schweinitzia*, Ell., is reported from Long Island, but wants confirmation.

24. Note on Darlingtonia Californica, by J. Torrey.—It is now more than sixteen years since that distinguished botanist, M. Alphonse De Candolle, published in the Bibliothèque de Genève some remarks on the genus Darlingtonia, a translation of which appeared in a horticultural journal of Philadelphia. *

M. De Candolle states that the figure of the plant exhibits a character not mentioned by me in the description, and which is very remarkable if it be real; that is, if it be not an error of the draughtsman. The five cells of the ovary are represented as *alternate* with the sepals; but in Sarracenia, which he had seen living, the cells of the ovary are opposite the sepals. The artist who executed the drawing is the well known Mr. Charles Sprague, who

* The Florist and Horticultural Journal. [discontinued.]

made all the illustrations for Dr. Gray's Genera of the Plants of the United States, and in that work the cells of Sarracenia are correctly represented as opposite the sepals. M. De Candolle asks, "Has he committed an error in the plate of the Darlingtonia? "Considering his usual accuracy, I doubt it. On the other hand, it "is difficult to believe in contrary symmetries in genera so closely "allied. I have discovered a similar fact in the family of Campa- "nulaceæ, and it has enabled me to establish several genera, which "are, besides, indicated by their external appearance. The thing, "then, is not without a parallel, though it is very rare, and should "be well examined before being admitted. I would, therefore, point "out to American botanists, and particularly to Dr. Torrey, the "great importance of verifying fig. 1 of Sprague's plate."

In making the details of the original drawing, Mr. Sprague had at his disposal only a single flower of a dried specimen, and it was not until recently that I have been able to test, in a satisfactory manner, the accuracy of his analysis. It is known to most of our botanists, that after waiting many years to see the plant in a living state, we have, through the kindness of the brothers Messrs. Henry, who reside near where it grows abundantly in California, and by the liberality and prompt action of Messrs. Wells, Fargo & Co's Express, received fresh living specimens, several of which have flowered. I am now able to state that Mr. Sprague has shown "his usual accuracy" in all the details of his drawing. The cells of the ovary are *alternate* with the sepals. Indeed, I have found scarcely any thing to add or alter, now that we have the living plant for comparison.

The theoretical structure of the flower of Darlingtonia, we think, accords with what is actually the case. The stamens are in a single series, and are mostly about 15 in number. If we assume that they represent only five, each by collateral chorisis increased to three, they will form a verticil alternating with the petals, so that they will necessarily alternate with the carpels also. In Sarracenia the stamens are in a double series, and probably, as in Darlingtonia, multiplied by chorisis; the two verticils alternating with each other, so that the carpels, in this view, will be opposite the sepals.

COLUMBIA COLLEGE, April 11th, 1871.

25. Broussonetia.—Early in May last I witnessed a remarkable phenomenon in connection with the inflorescence of Broussonetia papyrifera. It was about 9 A. M., and the morning sun was just coming over the roof of an adjacent house and striking the branches of the tree, of which the leaves were not yet out, but the catkins were fully formed, though unexpanded. As I casually observed it, I was struck by seeing a light cloud, apparently of smoke, floating amid the branches. I imagined that it must come from some neighboring chimney; but, upon attentive observation, no such smoke could be discerned. There was no smoking chimney near; nor, in a city where anthracite is so generally burned, is it ever easy to find one.

The smoke appeared for a moment, drifted away with the wind,

and yet reappeared as rapidly as it vanished. I soon saw that it arose from no foreign source, but was connected with the tree itself; for two or three small clouds would suddenly appear in nearly as many different parts of the tree at nearly the same moment; and as each would be driven off and dispersed a new one would appear elsewhere. These puffs of smoke were all of nearly uniform size, each perhaps as large as that which is made by the lighting of a lucifer match. They were entirely confined to the tree, not a particle being visible beyond its outline, and appeared throughout its whole extent.

I watched the phenomenon for some time, till I became entirely satisfied that the seeming smoke really proceeded from the tree itself, and that it could be nothing else than the pollen, from the catkins which opened with a sudden explosion in the rays of the sun.

The phenomenon continued in full activity as long as I was at liberty to observe it, and when I was obliged to leave the spot, after some ten minutes of observation, the process was still going on, two or three of the little puffs constantly appearing in widely separated branches at every instant. B. N. Martin.

26. Presses.—I have been interested in your remarks on the size of holders etc. They were very opportune. I am satisfied that we should have more herbariums, if young collectors had more instruction on this subject.

I have often thought of describing my press. I have used the lever and the screw press both, and prefer the one I have now to either: it consists of two pieces of pine boards, 12 × 17 inches, and half a dozen stones, weighing from 5 to 10 lbs. each. The advantage of this simple contrivance is, that it is cheap and within the means and ingenuity of any one, and that it constantly acts by force of gravity.

I have besides ½ dozen pieces of *Binder's Boards*, well painted, to put between fresh and partly cured plants. Several presses can be substituted, or bits of board can be used instead of Binder's Boards, when cheapness is an object.

I make pads or driers by cutting newspapers to the size of the boards of the press, and fastening 8 thicknesses together by stitching the corners with strong thread. O. R. Willis, White Plains.

27. Cerastium vulgatum, L.—grows sparingly on the rocks on the Westchester side of Harlem River, east of McComb's Bridge.

28. Exchanges.—A correspondent in England wishes to exchange mosses and marine algæ. It seems that packets can be sent by book post at a moderate charge.

29. Note Books.—Always take a note book on a botanical excursion. Many observations may thus be preserved which would lose their value if trusted to uncertain memory.

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

30. **Herbarium Suggestions.**—No. 2. *Cases for specimens.*—Fire-proof apartments and cases fixed to the walls are usually attainable only by Colleges and other public institutions; although, to their shame be it said, they are often too penurious to provide such necessary protection to invaluable collections, that, once destroyed, could never be replaced.

The amateur botanist must be content with humbler accommodations. In ordering the cases to contain his collection, he has to determine the material of which they are to be made, their external dimensions, the number and size of the compartments, etc.; bearing in mind that they should not be so large and unwieldy that they cannot readily be moved if necessity requires; that they should be of such a shape that others may be added to their number as his collection increases; and that the compartments should be within easy reach of the hand and properly adapted to the size of his sheets.

After trying cases of different forms and sizes, my own experience leads me to recommend the following dimensions, which are particularly adapted to the genus-covers previously suggested, viz.: 18 × 20 inches, but which will answer for sheets smaller in either direction by about an inch.

Material.—Black walnut externally, one inch in thickness and well-seasoned. Internally, pine or other light wood.

External dimensions.—Width, four feet, six inches. Height, three feet, seven and a half inches. Depth, twenty-one inches.

Internal arrangement.—Depth in the clear, nineteen inches.

Four series of compartments, side to side, of twelve each; forty-eight compartments to each case

Each compartment twelve and six-tenths inches wide, and three inches high.

Doors.—Two in number, meeting in the centre; each three feet, five and a half inches high by two feet, two and a half inches wide, and panelled.

It will be a great convenience to have each shelf cut out at its centre in a semi-lunar form, so as to facilitate raising the sheets above it between the fingers.

If two of these cases be placed one upon the other, the upper compartments of the higher one will still be within reach by stepping upon an ordinary chair. Any greater height requiring the use of a step ladder is better avoided, for obvious reasons.

The height, above recommended, of each compartment, viz., three inches, is less than that usually adopted in large herbaria, in which five inches are about the common standard; but for herbaria of moderate size, I think the former measurement preferable, to avoid crowding a number of small natural families together.

A case like the above will cost, at the present time, in New York City, about forty-five dollars, but can doubtless be made cheaper in the country. About five dollars will be saved by having the exterior of pine wood. F. J. B.

31. **Viola rostrata**, Pursh.—We recently detected this fine violet in a rocky glen among the hills back of South Orange, N. J. It is

particularly abundant about the foot of what is called Hemlock Falls, where **Mitella dephylla**, L., also abounds. This makes the twelfth violet in our catalogue, not counting the varieties. Of the latter we sought in rain this season in the locality indicated by Mr. Hall, Vol. I. § 49, for the white and bicolor varieties of *V. pedata*, L., but found the variegated *V. cucullata* abundant. A longer search might have revealed the others. The long beak of *V. rostrata* is very remarkable, being fully twice as long as the petals. Would that some naturalist would discover what moth or other insect is required to sound the depths of this deep nectary, and whose comparative rarity must be the occasion of the rarity of this species, which, we understand is abundant in the interior of the state.

While speaking of Violets, we may mention that our attention has been called this spring to the fragrance of *V. blanda*. We gathered many flowers of this sweet smelling species which seemed quite devoid of odor; whereas, on the other hand, we thought we discovered a faint fragrance in *V. lanceolata*, none at all in *V. primulæfolia*. We should like to learn the experience of others on this subject. *V. tricolor*, var. *arvensis*, was very abundant this May on the rocks back of Weehawken ferry overlooking the Hackensack meadows.

32. I have just received a letter from Rev. Dr. Shoop, now at Augusta, Michigan, who sends me a specimen of *Corydalis flavula*, Raf., with the remark "I found it first along the Mich. C. R. R. track, "four specimens of it, but it did not appear to be established, but "rather a new comer, whose hold was slight and existence precarious. I afterwards found one specimen in the woods. I send "you a specimen in this. This is the whole plant I found in the "woods, except the root and root leaves." The particularly curious thing about the specimens is their size. The one Mr. Shoop sends me is, by exact measurement, 2 36-100 inches in extreme height, and 4-5 of an inch in its widest spread. It has two blossoms.

Mr. Shoop also has some remarks about the early spring which may be worth mentioning: "*Acer dasycarpum* in flower on 11th March, *Erigenia bulbosa* in flower on the 21st March, and heard of its being found by others in flower several days earlier. Eight plants in flower in March, and 46 by the 1st of May." His climate is much colder than ours: about the latitude of Albany. I. H. H.

33. Utricularia minor, L.—Mr. Merriam informs me that Mr. G. B. Brainerd has gathered what he considers to be this plant from small pools near the shore at New Lots, L. I. I am pretty confident that I gathered it many years since on the shore of a small pond between South Brooklyn and Flatbush. This was late in the season, and I lost the specimens on the way home, so that I was unable to give it a close examination, and had no opportunity for revisiting the spot that year. I have never been able to find the plant since. W. H. L.

34. Extra-limital.—Mr. Austin writes that he has found *Gratiola sphærocarpa*, Ell., in Cape May Co., N. J.; also, in South Jersey, *Plantago heterophylla*, Nutt. *Utricularia subulata*, L., also grows in the Jersey pine barrens. Some, or all, of these plants are to be looked for within our limits.

DIAPENSIACEÆ.

PYXIDANTHERA, Mchx.—**P. barbulata**, Mchx.; South Amboy, etc.

AQUIFOLIACEÆ.

ILEX, L.—**I. opaca**, Ait.; Kingsbridge, N. Y., *State Flora;* Flatbush, Glen Cove etc., L. I.; Sandy parts of N. J., Redbank etc.; Sandy Hook, *Ruger.*—**I. verticillata**, Gray; common; N. Y.—**I. lævigata**, Gray; Central Park, *R. & P.;* Long Island, Canarsie to Babylon, *Merriam;* Secaucus swamp; Staten Island; Chatham, N. J.; not at Closter, but commoo in South Jersey, *Austin.*—**I. glabra**, Gray; Long Island, sandy woods, Canarsie to Babylon, *Merriam;* Staten Island, *W. H. L.;* Secaucus and New Durham swamps; sandy parts of N. J.

NEMOPANTHES, Raf.—**N. Canadensis**, DC.; Hackensack swamps; Blue Point, L. I., *Hall.*

EBENACEÆ.

DIOSPYROS, L.—**D. Virginiana**, L.; southern part of state, *State Flora;* West Farms, Chatham, N. J., Bergen Point, *W. H. L.;* Glen Cove, *Coles;* common neor White House on N. J. Central R. R., and in South Jersey, *Austin.*

PLANTAGINACEÆ.

PLANTAGO, L.—**P. major**, L.; very common; N. Y.—**P. cordata**, Lam.; "In a swamp near Clark's woods, 3 miles from the city," *Torr. Cat.;* Manhattanville, *State Flora.*—**P. maritima**, L.: Var. **juncoides**; common in salt marshes; N. Y.—**P. lanceolata**, L.; very common; N. Y.—**P. Virginica**, L.; Patterson, Red Bank, N. J., *W. H. L.;* Closter, *Austin;* Hudson City, *Ruger;* N. Y.—**P. pusilla**, Nutt.; Bloomingdale, *State Flora;* Break-neck Hill, 8th Ave., *O. W. M.;* Ravenswood, L. I., *Allen;* Ocean Co., N. J., *Austin.*

PLUMBAGINACEÆ.

STATICE, Tourn.—**S. Limonium**, L.: Var. **Caroliniana**; common in salt marshes; N. Y.

PRIMULACEÆ.

TRIENTALIS, L.—**T. Americana**, Pursh; common; rare at Closter, *Austin.*

LYSIMACHIA, Tourn.—**L. thyrsiflora**, L.; in salt marshes near N. Y., *Pursh;* Hackensack marshes; Glen Cove, *Coles.*—**L. stricta**, Ait.; common; N. Y.—**L. quadrifolia**, L.; common; probably on N. Y. Island, though not reported.—**L. vulgaris**, L.; naturalized on and near Flatlands road, L. I., *Ruger*, and near Peckskill, *W. H. L.*—**L. ciliata**, L.; common; N. Y.—**L. lanceolata**, Walt.; not rare at Closter, *Austin;* Staten Island; Yonkers, *Pooley:* Var. **hybrida**; Newark meadows, *Torr. Cat.*—**L. nummularia**, L.; old gardens; 152nd St. next to Trinity cemetery; road sides, Staten Island, Peckskill, *W. H. L.;* Tarrytown, *Hall.*

ANAGALLIS, Tourn.—**A. arvensis**, L.; not uncommon, particularly on sandy soil; N. Y.; occasional about Brooklyn, *Merriam;* grows finely in the white sand at Ocean port, N. J., *Ruger;* about west end of Erie tunnel, *Austin.*

SAMOLUS, L.—S. Valerandi, L.: Var. Americanus, Gray; common; N. Y.

HOTTONIA, L.—H. inflata, Ell.; Closter, common, *Austin;* Fort Lee, *W. H. L.;* Westchester Co., *Mead in State Flora.*

LENTIBULACEÆ.

UTRICULARIA, L.—U. inflata, Walt.; stagnant waters in N. J., *Eddy in Torr. Cat.;* Ponds on Long Island, *State Flora.*—**U. vulgaris, L.**: Var. **Americana**; common.—**U. minor, L.**; probably on L. I., vid. § 33.—**U. clandestina, Nutt.**; Tottenville, Staten Island, *W. H. L.*—**U. intermedia, Hayne**; Closter, common, *Austin.*—**U. striata, Le Conte**; N. Y., *Le Conte;* L. I., *Willis, both in State Flora.*—**U. gibba, L.**; Closter, common, *Austin;* near the Passaic at Woodside, *W. H. L.;* Woodhaven, L. I., *Ruger;* East Hampton, *Allen;* West Hampton, *Merriam.*—**U. purpurea, Walt.**; near N. Y. in N. J., *State Flora;* in small ponds back of Ridgewood Cemetery, L. I., covering the water in masses resembling blue violets, *Mr. G. B. Brainerd.*—**U. cornuta, Michx.**; Centreville, L. I., terminus of Centreville Ave., *Ruger;* L. I., *Hall.*

BIGNONIACEÆ.

TECOMA, Juss.—T. radicans, Juss.; well established on the south shore of Staten Island, *W. H. L.*

CATALPA, Scop., Walt.—C. bignonioides, Walt.; common in cultivation; Central Park, *R. & P.;* spontaneous in many parts of L. I., *Merriam.*

OROBANCHACEÆ.

EPIPHEGUS, Nutt.—E. Virginiana, Bart.; common.

CONOPHOLIS, Wallroth.—C. Americana, Wallroth; Bloomingdale, Long Island etc., *Torr. Cat.;* Bergen Point and Chatham, N. J., *W. H. L.*; Closter, common, *Austin.*

APHYLLON, Mitchell.—A. uniflorum, Torr. & Gray; not uncommon; N. Y.

SCROPHULARIACEÆ.

VERBASCUM, L.—V. Thapsus, L.; very common; N. Y.—**V. Blattaria, L.**; very common, both colors; N. Y.

LINARIA, Tourn.—L. Canadensis, Spreng.: common; N. Y.—**L. vulgaris, Mill.**; too common; N. Y.; the Peloria form at Gravesend, L. I., *W. H. L.;* found by *W. R. Gerard* at Poughkeepsie, in 1868, with two, three, and five spurs.—**L. genistifolia, Mill.**; used to be found in the upper part of N. Y., but the station has long been destroyed; a single specimen was gathered years ago in South Brooklyn, and Mr. Caverley communicated to Dr. Allen a specimen from Queens Co., where it may perhaps be rediscovered.

SCROPHULARIA, Tourn.—S. nodosa, L.; common; N. Y.; scarce at Closter, *Austin.*

CHELONE, Tourn.—C. glabra, L.; common; N. Y.

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PENTSTEMON, Mitchell.—P. pubescens, Solander; Brooklyn, *Allen;* abundant near Pompton; Preakness, *Fischer;* Palisades; Yonkers, *Pooley;* Closter, *Austin;* along Central R. R. of N. J., Bergen Point, *W. H. L.*

MIMULUS, L.—M. ringens, L.; common; N. Y.—M. alatus, Ait.; Bloomingdale, *Torr. Cat.;* and not uncommon, though less abundant than the former; my impression is that it prefers wetter situations, *W. H. L.*

GRATIOLA, L.—G. Virginiana, L.; common; N. Y.—G. aurea, Muhl.; abundant in sandy swamps, L. I.; New Jersey, *Torr. Cat.*

ILYSANTHES, Raf.—I. gratioloides, Benth.; common; N. Y.

LIMOSELLA, L.—L. aquatica, L.: Var. tenuifolia, Hoffm.; Long Branch, *Torr. Cat.;* Passaic River, Woodside etc.; Peekskill; New Bridge, N. J., *Austin.*

VERONICA, L.—V. Virginica, L.; not uncommon; L. I., near Greenpoint, and at Richmond Hill, S. S. R. R., *Ruger;* Staten Island; Chatham, N. J.; Peekskill; on Staten Island it grows finely in brackish swamps, also in wet meadows at Chatham, N. J., *W. H. L.*—V. Anagallis, L.; creeks and ditches, N. Y., *Torr. Cat.;* along the Erie R. R., from Piermont to Sufferns, very common also in Orange Co., but does not occur about Closter, *Austin;* N. R. R. of N. J., Tappan, *W. H. L.;* Nyack, *Merriam.*—V. Americana, Schweinitz; common on L. I., *Ruger;* Yonkers, *Pooley;* Nyack, *Merriam;* Palisades; Closter, common, *Austin;* Chatham, N.J.; N. Y.—V. scutellata, L.; rather common; New Jersey; Staten Island; Connecticut, *Ruger.*—V. officinalis, L.; common; but scarce about Closter, *Austin;* N. Y.—V. serpyllifolia, L.; common; N. Y.—V. peregrina, L.; common; N. Y.—V. arvensis, L.; common; N. Y.—V. agrestis, L.; gravelly fields, *Torr. Cat.;* Brooklyn, *Merriam.*—V. hederæfolia, L.; Brooklyn, *State Flora;* abundant on Palisades.

GERARDIA, L.—G. purpurea, L.; common; N. Y.—G. maritima, Raf.; common; N. Y.—G. tenuifolia, Vahl; common; N. Y.; white var. at South Amboy.—G. flava, L. partly; common; N. Y.—G. quercifolia, Pursh; Harlem River, N. Y., *W. H. L.;* Morristown, N. J., *W. H. L.;* Closter, common, *Austin;* Furman's Island, L. I., *Ruger.*—G. integrifolia, Gray; N. J., *Austin.*—G. pedicularia, L.; Long Island; Staten Island; N. Y.? Hohokus, N. J., rare, but common in Orange Co., *Austin.*

CASTILLEIA, Mutis.—C. coccinea, Spreng.; Astoria, *W. H. L.;* Glen Cove, *Coles;* in boggy meadows, *Torr. Cat.;* Staten Island, *Le Roy;* Closter, common, *Austin;* Chatham, *W. H L.*

PEDICULARIS, Tourn.—P. Canadensis, L.; common; N. Y.—P. lanceolata, Mchx.; Maspeth, L. I., *Ruger;* Astoria, *W. H. L.;* Brooklyn, and Hackensack meadows, *Torr. Cat.;* Closter, common, *Austin;* Chatham, N. J., *W. H. L.;* not uncommon in Westchester Co.

MELAMPYRUM, Tourn.—M. Americanum, Michx.; common; N. Y.

ACANTHACEÆ.

DIANTHERA, Gronov.—**D. Americana**, L.; Staten Island, *Le Roy*.

VERBENACEÆ.

VERBENA, L.—**V. angustifolia**, Mchx.; Hoboken, *Torr. Cat.;* abundant at Passaic Falls, *Merriam*; Canarsie, rare on L. I., *Merriam;* Closter, common, *Austin;* Red Bank, N. J., *W. H. L.;* Long Branch, *Ruger;* N. Y., *State Flora.*—**V. hastata**, L.; common; N. Y.; Closter, scarce, *Austin.*—**V. urticifolia**, L.; common; N. Y.—**V. stricta**, Vent.; *Le Roy;* Central Park, *R. & P.*—**V. officinalis**, L.; "Borders of fields about Bergen, N. J.," *Torr. Cat.;* Barrens of N. J., and Suffolk Co., L. I., *W. H. L.;* suburbs of N. Y., *State Flora.*

PHYRMA, L.—**P. Leptostachya**, L.; common; N. Y.; not common on the south side of Long Island, *Merriam.*

35. Note on Hottonia inflata, Ell.—This is a rare plant in the neighborhood of New York. The nearest place to the city in which I have observed it is near Bull's Ferry, in a swamp on the road-side, about five miles from Hoboken. From no part of the State of New York have I received it, except from West Chester County, where it occurs in several ponds: but Mr. Vasey has found it near Dexter, in Jefferson County. Farther south, and in some of the western states, it is more common; but it has not, to my knowledge, been found west of the Mississippi River.

Until the present season I have not had an opportunity for examining this plant in a living state. About three weeks ago I found it growing in ditches near Carrieville Station, on the Northern Railroad of New Jersey, 21 miles from Jersey City. It was just commencing to throw up its scapes; in which state I removed a number of specimens and placed them in a glass vase of water, so that I had an opportunity of watching their development in my study. The scapes have grown to the height of four or five inches, and have produced numerous whorls of flowers. The corolla is scarcely more than a line and a half in length, and its border never expands. At a very early age, when the flower-buds are barely formed, fertilization takes place, and the corolla is detached from its base by the enlargement of the ovary, on the summit of which it remains, like a little cap, until the fruit is mature. Fertilization must take place without any aid from without, for the corolla does not open, the stamens and pistil being closely shut in, and the anthers being directly in contact with the stigma.

In the *H. palustris* of Europe the flowers are many times larger than in our plant, and the scapes are not at all inflated. There are also many other points of difference.

It is remarkable that this curious plant, which has been known more than half a century, has never been figured in any botanical work.

Columbia College, New York, June 6, 1871. JOHN TORREY.

36. Notes by J. S. Merriam.—I lately found within the grounds of Prospect Park, but in a portion not yet *improved* (?)—

Ranunculus multifidus, Pursh, growing in abundance. It is in a small pond to the west of the main drive, and a short distance south of the late residence of Mr. Litchfield.

Nasturtium Sylvestre, R. Br., grows on the border of the same pond in great luxuriance, and there is enough for all the herbariums in the country.

Arethusa bulbosa, L., can be found in the marshes of New Lots, about a mile south-east from East New York.

Pogonia verticillata, Nutt., was brought to me by Mr. G. B. Brainerd, also from New Lots, but gathered in the woods a little south-east from the Ridgewood engine-house.

Archemora rigida, DC., I observe was not reported in the Bulletin, from Long Island. It grows from Babylon along the south shore of the Island to Canarsie.

Can you tell me where I can find in this vicinity *Acer macrophyllum*, or *A. circinatum? A. campestre*, the only maple indigenous to England, I was very glad lately to find in Central Park.

A friend tells me that on a recent R. R. trip in Massachusetts, he saw the boys enter the cars with bunches of *Arethusa bulbosa* for sale at 10 cents a bunch.

J. S. M., 327, Clermont Ave., Brooklyn, June 13.

37. **Notes by M. Ruger.—Geranium pusillum,** L., Maspeth, on Cooper Ave., south of the old Flushing Rail Road; and Locust Ave., near South Side R. R.

Sedum ternatum, Mchx., grassy bank near West Flushing.

Chenopodium glaucum, L., grows in Flatbush, along East New York Ave. At the entrance to the "piggery," opposite the rear of Flatbush Hospital, it grows in abundance.

38. **Notes by Rev. S. Lockwood.**—Last June, I discovered and gathered fine specimens of **Helonias bullata,** L., near Freehold, N. J.; also in October, 1869, I found and collected beautiful specimens in fruit of the Climbing Fern, **Lygodium palmatum,** Swartz. These last were not very far from Keyport, N. J. S. L., Freehold, N. J., June 5th.

39. **Notes by I. Coles.**—I collected a specimen of **Viola pedata, Var. alba,** in Suffolk Co., this spring. The variety with two dark purple petals and yellowish eye or centre grows quite plentifuly some six miles south of this place. I also found, this spring, for the first time, the **Trillium erectum,** L., in a swamp about three miles east of Glen Cov I. C., Glen Cove, June 12th.

40. **Notes by I. H. Hall.—Plantago Virginica,** L., I have found in some considerable quantity at Weehawken; also some at High Bridge in Westchester County; also at East Chester, and in Connecticut. **Lysimachia thyrsiflora,** L., in fresh water at, or near Hall's Corners, between Tarrytown and White Plains, and I have an indistinct impression that I found it elsewhere in the vicinity. Also at South Norwalk, Connecticut. (It is common enough in Central N. Y.) **Anagallis arvensis,** L., I have found very common in East Chester and on Throg's Neck, and places near; and quite as often by the dusty roadside as anywhere else. It grows in such places frequently from New York as far East as I have been, and also as far along New

Jersey as I have been. At Long Branch it is fine and plenty. I have seen a spontaneous *Catalpa* or two on Staten Island, and a number in Westchester County. The roadsides near Throg's Neck are frequently set with Catalpas for shade—many of which trees are very old indeed. By the way the finest Copper Beech, probably, in the country, grows at Throg's Neck, on the grounds of Mr. Van Schaick. It is enormous in size, very beautiful and graceful in shape, of charmingly colored foliage. I do not know its dimensions or its age; but I think the diameter of the trunk at the height of a man's head must be six feet. If you are ever up there, it is worth visiting and measuring. I. H. H., 36 Pine St., May 31st.

41. **Amelanchier Canadensis,** Torr. & Gray.—Mr. E. S. Miller, of Wading River, L. I., has sent us a variety of this plant with petals colored red. The specimen sent was gathered in Massachusetts in 1867, but Mr. M. has observed a similar coloring this spring in plants on Long Island.

42. **Viola rostrata,** Pursh.—A friend suggests that no insect with long proboscis is needed to fertilize this flower, and sends us specimens of *Dicentra spectabilis* with the spurs slit by the Humblebees to get at the nectar. We have observed the same operation in the case of the Lilac, but both these plants are exotics, and the bees and the flowers have not been developed in adaptation to each other. We suppose that some night flying moth with suitable proboscis feeds on the honey of this violet, and that the rarity of the moth in this district occasions the rarity of the flower. The seed capsules we noticed were not as well developed as in other more common violets.

43. **New Stations.—Galium boreale,** L., and **Phlox pilosa,** L.; grow freely just back of the brick-yard near Chatham Station, on the Morris and Essex R. R.—**Kalmia latifolia,** L., in the woods on the Coney Island Horse R. R., along with the varieties of violet referred to in the last number.—**Rosa micrantha,** Smith, seems abundant along the roads about Yonkers.

44. **Erratum.**—In last No., § 30, Herbarium suggestions, line 20, for "18 × 20," read "18 × 12," for size of compartments.

45. **Aspidium fragrans,** Swartz.—In Vol. I., page 432 of the "American Naturalist," (well deserving of its name,) Mr. H. Willey reports finding this species at Berlin Falls, N. H. We recur to this discovery now, when the season approaches for excursions to the mountainous region in the north of this state, in hopes that, by directing attention to it, we may lead some of our friends to detect it within our borders. A correspondent wrote us last winter, that a friend had found a fragrant fern last summer in New Russia, Essex Co. We did not learn that any specimens had been preserved. We hope our correspondent will be able to get more precise information on the subject this year, and, if possible, procure us a specimen.

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46. **Silene inflata**, Smith ; **Cucubalus Behen**, L.—This species of Silene presents an interesting case of dimorphism. It produces two kinds of flowers on different plants, both of which are fertile, but with the peculiarity that one of the forms is pistillate only.

In the latter the styles, which are usually tipped with pink, protrude at an early stage of the flower, and finally attain nearly double the length of the calyx. The petals and calyx are smaller than in the other form, the latter more exactly ovate, as Linnæus describes it, and its color, whether green or mottled, is duller. The base of the styles forms a disk on the top of the ovary in both cases, but in the pistillate plant this is more prominent, giving it when mature an elongated ovate form, whereas that of the staminate plant is more exactly ovate, just the opposite to the relation of the calyces. It is this disk which splits into the six teeth by which the capsule opens. The number of styles is commonly three ; in three cases, however, I found four styles, and once, only two. If we open the calyx of a well advanced flower, we find the ovary surrounded to about half its height by ten abortive stamens, but at an early stage of the flower these stamens will be found to be perfectly formed. As the pistil must be fertilized from without, we may suppose, with Darwin, that it matures vigorously and exhausts the support which would otherwise go to the stamens ; whether they have a hereditary taint, I am unable to state, but it is probable ; the point might be determined by destroying the styles at their first appearance. Gärtner, as quoted by Darwin (*Plants & Animals under Domestication, page* 166, *Eng. ed.*), ascribes such *tabescence* in Silene to an inherent tendency to become dicœcious. I have not had the original to consult. Let us hope that some day New York may possess a Botanical Library : we have a fine foundation in Dr. Torrey's.

In the other form of flower there are ten stamens and three styles. The five outer stamens, alternating with the petals, are the first to elongate, and when the petals open attain the length of the styles in the flower which is pistillate only, and then open and discharge their pollen. At this stage of the flower the five inner stamens, which are opposite to and adhere by their bases to the claws of the petals, occupy with the styles of the same length the throat of the corolla. They do not, however, seem to discharge their pollen, till they and the styles have overtaken the other anthers. The anthers are attached by a point only, are introverse, and soon drop off, whether by the action of the wind or insects. The split of the anthers and the tops of the filaments are usually pinkish ; in the majority of cases the young ovary is a deep pink, a color which it afterwards in a great measure loses ; the ovary of the pistillate form is generally green, but I have seen the cases reversed. The calyx of the staminate flowers is generally readily distinguished by a brighter pink.

Except in size the bi-lobed petals of both kind of flowers are nearly alike, perhaps the shoulders of the claws in the staminate form are broader in proportion, and the claws in general more specialized in form, both being moulded to the young stamen. In the half opened flowers the claws overlap in front of the petals, present-

ing something like a crown. The lobes are of a thicker texture than the claws, and of a dead white color, whereas the claws are translucent: the two are readily pulled apart. In the young petal a strong midrib seems to pass through the base of the claw from front to back and thence to run up to the lobes, where it branches variously, but the only other nerves of the claw are two faint ones continued up near the outside margin of the lobes. At the top of the claw, from the bilobation of the petal, is a pretty deep groove, marked at its commencement by two strong convexities, which have probably been mistaken for the crown of the petals as they have no other. I am satisfied that these are only convexities of the claw, the tissue being thin, and the concavities on the opposite side manifest. I have gone into these details, as I think this structure throws light on the question of the origin of the crown in Silene. In the staminate flowers there is a pink nectariferous spot, more or less conspicuous, where the lobes meet the groove.

The duller color of the pistillate form, and the somewhat greater predominance of the family pink in the other, may perhaps be explained by reference to wind and insect agency. The nice taste of insects for color can have escaped no one who has attended to the fertilization of flowers. There are some broad views on this subject in the admirable article in the American Naturalist for July, translated by R. L. Packard from Muller and Delpino.

It would be interesting to compare the average number and weight of the seeds of the two kinds of capsules, and also to watch how the agency of insects is employed in the fertilization. I have not had the opportunity of doing this myself, being indebted to my friend Mr. Le Roy for supplies of the flower. It is abundant in some parts of Westchester Co., and the two kinds grow in company.

I have not been able to find any notice of the dimorphism of this plant, later than Linnæus, who *(Spec. Plant. Ed.* 3.*)* after describing Cucubalus Behen, has these words:

"Varietas feminea in Horto upsaliensi frequens. Hæc Hermaphrodito minor. Calyces exacte ovati, magis obscuri nec oblongo-ovati. Corolla minor. Stamina corolla dimidio breviora terminata tuberculo absque antheris. Styli 3–5 *corolla longiores declinati. Planta utraque fertilis."*

The only other instances of dimorphism that I can recall occur in Lythraceæ, Rubiaceæ and Primulaceæ, with a tendency to it in Polemoniaceæ. All these orders, including Caryophyllaceæ, have generally opposite or whorled leaves. Having formed a theory, which was strengthened by this consideration, I thought the Gentian family a suitable one to investigate for other examples. In looking over my not very extensive collection I was fortunate to find in Menyanthes trifoliata, L., a decided case of dimorphism, though the style in all the flowers finally becomes much elongated. The fact is of interest, but the theory halts, for Menyanthes belongs to the section of Gentianaceæ with alternate leaves. W. H. L.

47. **Linnæa borealis,** Gron.—You remember the doubts about the plant which I found at Babylon, L. I., in 1868, and which I have insisted was Linnæa. Well, while I was at Crown Point, I came upon the same plant, but there were no flowers. After considerable

search I found the fruit, and, at last, one withered and dried bell which had not fallen. There was no longer a doubt as to this plant at least; and, in the study I gave it there in the woods, it was easy to see what had occasioned it as to the specimen from Babylon. That consisted of the ends of the summer runners only. I compared the plants on my return, and was fully convinced there could be no mistake.

I determined, therefore, to go to Babylon and see if I could find the plant, knowing nearly the locality in which I had found it three years ago. I went yesterday. The locality was considerably changed by the cutting away of the woods along the rail-road (South Side R. R.). I hunted for three hours the place over; in the wood and out of it; around the stumps, under the brush and bushes, in the sun and in the shade. When I failed to find it, I took "a new departure" where it *seemed* to have been, with no better success. I found plenty of *Arctostaphylos Uva-ursi*, *Chimaphila umbellata* and *C. maculata*, *Gaultheria procumbens*, and *Cypripedium acaule*—but no Linnæa. I had at length about abandoned all hope of it, and concluded that it had died out with the cutting away of the woods, when I struck upon a few scattered plants. You may imagine my satisfaction! Down on my knees I went, and searched for the fruit like a miner for nuggets. I struck upon the little forked scapes—but no fruit. I soon, however, traced it to the bed where it has taken possession of the ground, like *Nepeta Glechoma*, almost to the exclusion of all other plants. It covers a space 50 feet square, and, of course, there I found the fruit, and, at last, under some bushes, in the shade, one little scape with its two beautiful, blushing bells, fresh and fragant, rewarded my search.

I mention this, not only because I think you may feel a *personal* interest in the finding, but as showing how very local a plant may be, for Dr. Torrey thinks it has never been seen elsewhere on the island, and even in the New Durham swamp it is supposed to have been placed by Michaux. It gives hope, also, that we may yet find *Corema Conradii*, *Clitoria Mariana*, and some other plants which were long ago reported, but have not since been found on the island. They will be met with only by long search, or be come upon by accident. Knowing, as I thought, just where to find this, I hunted three hours for it, and was about giving up the search, when I fell upon it.

It is about 70 feet north of the rail-road and 900 feet east of the lane. July 14th, J. S. M.

48. **Tetramerism in Tradescantia.**—Early in June, I noticed with much interest a fourparted flower on a bush of Tradescantia Virginica, in my little city garden. The bush was very vigorous, and bearing profusely. I pressed this flower at once, and then began to watch for more. About a week later, another one appeared on the bush; and in order the better to examine the ovary, I allowed this one to remain two or three weeks. Both these flowers had four sepals, four petals, and eight stamens, a perfect example of tetramerism, as far as the ovary. This I could not judge of in the pressed specimen; but, on examining the other when it had somewhat matured, I

found two of the typical three cells well developed, and each containing one large ovule. The third cell was dwarfed, and had two ovules certainly, of small size : there may have been other rudimentary ones, but not distinct enough to be made out with a good magnifying glass. I had hoped to find four cells, so as to have the tetramerism quite complete ; but in this expectation I was disappointed, partially at least.

The incident is perhaps worth recording, as the spiderwort is usually such a regular and typical trimerous flower.

D. S. Martin, 236, W. 4th St., July 12th.

49. **Aspidium fragrans**, Swartz,—does grow in our state. Two years ago I found a few specimens of it on the rocky precipices at Lake Avalanche in Essex County. It is not improbable, therefore, that it occurs at New Russia.

I intend visiting the Adirondack region again soon, and hope to find more of it. **Woodsia glabella**, R. Brown, another rare fern with us, also occurs there. Chas. H. Peck, Albany, July 6th.

50. **New Stations.**—**Ægopodium podagraria**, L., seems to be pretty well established at Guttenberg.—**Geum strictum**, Ait., and **Erigeron Philadelphicum**, L., grow on Long Hill, N. J.—Dr. Pooley has sent us **Diospyros Virginiana**, L., from Yonkers.—We gathered in a swampy meadow at New Lots, in May, what we take to be **Rhynchospora fusca**, Rœm. & Schultes. We have little doubt of its identity though the plant was only in flower.

51. **Corrigenda.**—§ 38, read "Fern" for "Form"; § 39, read "plentifully".

LABIATÆ.

TEUCRIUM, L.—**T. Canadense**, L.; common along shores ; N. Y.

TRICHOSTEMA, L.—**T. dichotomum**, L.; common ; N. Y.

MENTHA, L.—**M. rotundifolia**, L.; Bloomfield, N. J., and near Hudson Station, N. R. R. of N. J., *W. H. L.*—**M. viridis**, L.; common.—**M. piperita**, L.; less common, but not rare ; these two mints are not reported from N. Y. Island, but probably grow there.—**M. aquatica**, L.: Var. **crispa**, Benth.; near Greenwood Cemetery on Coney Island R. R.; Pamrapo, on Bergen Point ; and near Lake Mohegan, Westchester Co.; also in Orange Co. It is singular that this well marked variety, which seems not uncommon, should not have been noticed before. *W. H. L.*—**M. Canadensis**, L.; common ; N. Y.: Var. **glabrata**, Benth.; "wet meadows, among bushes," *Torr. Cat.;* New Jersey, *W. H. L.*—*M. arvensis*, L., and *M. sativa*, L., are also reported, but with more or less of uncertainty, and are probably not established.

LYCOPUS, L.—**L. Virginicus**, L.: Var. **macrophyllus** ; common ; N.Y.; plant intensely bitter, *Austin ;* less common than the next, and not reported from Long Island, yet probably grows there.—**L. sinuatus**, Ell.; common ; N. Y.

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

PERILLA, L.—**P. ocimoides**, L.: Var. **crispa**; Train's Meadow road, L. I., *Ruger;* also escaped to road side near Huguenot, S. I., but can hardly be considered as established there, *W. H. L.;* Peekskill, *Le Roy.*

CUNILA, L.—**C. Mariana**, L.; Staten Island and Weehawken, *Torr. Cat.;* Palisades, rare near Closter, *Austin;* Snake Hill, etc., N. J.; Glen Cove, *Coles;* not uncommon in Westchester Co.

PYCNANTHEMUM, Mchx.—**P. incanum**, Mchx.; Manhattanville, *Torr. Cat.;* Yonkers, *Pooley;* Palisades; Closter, common, *Austin;* Long Hill, N. J., *W. H. L.;* Suffolk Co., L. I., *W. H. L.;* common in southern part of the State, *State Flora.*—**P. clinopodioides**, Torr. & Gray; Closter, common, *Austin;* Kingsbridge, *State Flora;* Tarrytown, *Hall;* Inwood, *Denslow;* Central Park, *R. & P.*—**P. Torreyi**, Benth.; Palisades, *Austin;* Kingsbridge, *State Flora;* Inwood, *Denslow* —**P. muticum**, Pers.; Weehawken, *Torr. Cat.;* Long Island, *Dr. Mitchill, in Torr. Cat. but not in State Flora;* Bergen Point, New Durham, etc., *W. H. L.;* Closter, common, *Austin;* Tarrytown, *Hall.*—**P. lanceolatum**, Pursh; common; N. Y.; plant with the odor of Pennyroyal, *Austin.*—**P. linifolium**, Pursh; common; not reported from N. Y.; plant scentless, *Austin,?*

ORIGANUM, L.—**O. vulgare**, L.; N. Y.; Fordham; Yonkers, *Pooley;* Weehawken.

THYMUS, L.—**T. serpyllum**, L.; Long Hill, *W. H. L.;* Morris Co., *Austin;* near Woodside, L. I., *Ruger.*

CALAMINTHA, Mœnch.—**C. Clinopodium**, Mœnch; N. Y.; Closter, common, *Austin;* Westchester Co., *W. H L.;* Long Island, *Torr. Cat.;* not uncommon.

MELISSA, L.—**M. officinalis**, L.; not uncommon; Inwood, *Le Roy;* Yonkers, *Pooley;* Glen Cove, *Coles;* Staten Island, Bergen Point etc., *W. H. L;* not in *Torr. Cat.*

HEDEOMA, Pers.—**H. pulegioides**, Pers.; common; N. Y.

COLLINSONIA, L.—**C. Canadensis**, L.; common; N. Y.

SALVIA, L.—**S. lyrata**, L.; "In sandy fields, N. J.", *Eddy in Torr. Cat.;* Red Bank, N. J., *W. H. L.*

MONARDA, L.—**M. didyma**, L.; Nyack, and about old gardens, *Merriam.*—**M. fistulosa**, L.; Yonkers, *Pooley;* Woods, N. J., *Torr. Cat.;* roadsides, Babylon, *Merriam.*—**M. punctata**, L.; common on Long Island, *State Flora;* South Amboy, Red Bank etc., N. J.

LOPHANTHUS, Benth.—**L. nepetoides**, Benth.; Washington Heights, *J. W. Wood;* Flushing, *Prince in Torr. Cat.;* Coney Is. R. R., City Line, *Congdon;* Glen Cove, *Merriam;* not uncommon on Long Island, *Ruger;* Central Park, *Ruger;* Hoboken and Weehawken, *Austin.*—**L. scrophulariæfolius**, Benth.; Weehawken and Hoboken, *Austin;* Kingsbridge, *W. H. L.*

NEPETA, L.—**N. Cataria**, L.; very common; N. Y.—**N. Glechoma**, Benth.; common.

PHYSOSTEGIA, Benth.—**P. Virginiana**, Benth.; Central Park, *R. & P.;* Yonkers, *Pooley;* near Flushing, *Allen.* I have seen it in the

neighborhood of Break-neck Hill and the Harlem River, and have had it brought me, as growing wild, from Staten Island, but I am not sure that these plants were other than waifs. *W. H. L.*

BRUNELLA, Tourn.—**B. vulgaris**, L.; very common; N. Y. [Prof. Goodale, *Amer. Naturalist, July*, 1871, thinks *Ajuga reptans*, L., may sometimes be mistaken for this plant.]

SCUTELLARIA, L.—**S. pilosa**, Michx.; Long Island, Staten Island, New Jersey, rather common; rare about Palisades, and Closter, *Austin.* —**S. integrifolia**, L.; in Newark meadows, *Eddy in Torr. Cat.*; common at Closter, *Austin*; also on Staten Island, and Long Hill, N. J., *W. H. L.*; Long Branch, *Ruger*; Babylon, *Merriam*; Yonkers, *Pooley.*—**S. galericulata**, L.; Long Island, *Torr. Cat.*, *Coles*, *Ruger*; Weehawken, New Durham Swamp, *W. H. L.*; Closter, scarce, *Austin*; Central Park, *R. & P.*; Yonkers, *Pooley.* —**S. lateriflora**, L.; common; N. Y.

52. **Lolium perenne**, L.—Within a few years this grass seems to have become quite common. Nearly all the door yards on Murray Hill, at least, contain more or less, and many are completely filled with it. The awnless variety is in the minority decidedly: my own front area came up thickly with the awned variety. The glume is not awned and only equals the lowest flower in length: the lower paleæ are all awned, the awns varying from a mere point to the length of the flower. The spikelets contain a variable number of flowers, 5—10, 7 being the average.

It would seem from the description that the length of the glume is the only distinguishing mark between *L. temulentum* and *L. perenne*. The grain of *L. temulentum* has been reputed poisonous, but, according to H. Wagner, this is now contradicted by German authors, who state that it is harmless, and that its supposed poisonous properties depend on ergot that gets mixed with the grain. T. F. Allen.

53. **White Strawberry.**—During a recent visit to the southern Adirondack region, I noticed the white strawberry of which I send you a small specimen. It was past the fruiting season, and I found only two or three berries, but was told by people living in the vicinity that they had gathered a few quarts of the fruit this summer. It was stated, also, that the berries were larger than the common red strawberry.

The plant is easily recognized by the eye when growing among *F. Virginiana*, Ehrhart, being of a yellow-green hue, with the ripened leaves bright yellow, while F. Virginiana has foliage of a blue or purple-green ripening to a bright dark red. The new variety is found mostly near to but not in the woods, and appears to be of a shy and timid character, and in danger of being overrun and choked out by the rampant "Reds."

I have never before seen the common red strawberry in such aggressive abundance as in the locality visited by me. It forms a thick turf over acres of land, to the exclusion of almost all other vegetation except the red raspberry, which seems to be struggling

with it for the possession of the soil. *Fragaria vesca*, L., occurs in the woods, and I was told of another variety with peculiar *pink* berries, but saw none of the plants.

I do not find mention of this var. of Fragaria in the latest edition of Gray's Manual. Brattleboro, Vt., Aug. 9, A. E. Brown.

We take this interesting plant to be a var. *alba* of *F. vesca*, L. It is desirable to have more complete specimens of this and also of the pink berried form. The locality mentioned by Mrs. B. is "Bennett's Farm, 13th Pond, Warren Co., N. Y." What is the color of the foliage, fresh and ripened, of *F. vesca?* Eds.

54. **Notes by I. H. Hall.**—On the 22nd of June, Mr. J. H. Redfield, Mr. C. F. Parker, and myself, took an excursion into the pine barrens of New Jersey, and found, about a mile and a half from Atco, a very large and unusual station of *Helonias bullata*, L. It grows there in clusters and singly, and, to all appearance, extends a long distance in the swamp, and exists in unlimited quantity. Mr. Parker, who is thoroughly conversant with most of the pine barren region, and probably with all the known stations of Helonias therein, has seen none at all comparable with this. Of course it was past flower.

Near the same place we found *Nymphæa odorata*, Ait., growing in wet or overflowed sphagnum, in a uniformly dwarfed state, the leaves being from two to three inches and a half in diameter and the flowers reduced in size to correspond. There was nothing unsymmetrical, imperfect, or unhealthy about the plants, however, and for a large space we saw none of the normal size. [This is Var. *minor*, Sims, and seems to be the prevailing form in the Pines. Eds.]

We also found abundantly; *Ænothera sinuata*, L., *Verbena angustifolia*, Mchx., *Danthonia sericea*, Nutt., &c. Verbena angustifolia I have also found in abundance at Jamaica, L. I., but not, by any means, as large or as flourishing as in the Pines.

As to the state of advancement of vegetation at the time, we found *Magnolia glauca* rather past its perfection but with still plenty of fresh flowers and buds; *Kalmia latifolia* and *K. angustifolia* rather past but very full flowered; *Andromeda Mariana* well and fully out; *A. ligustrina*, out but a little behind the other; *Xerophyllum*, rather past; *Calopogon* and *Pogonia ophioglossoides*, in perfection, as well as *Drosera linearis* and the various forms of *Œnothera fruticosa*. I found one lingering *Leiophyllum* in flower.

55. **New Stations.**—**Mentha rotundifolia**, L., near Richmond village, Staten Island, on the road from New Dorp, *Merriam.*—**Desmodium viridiflorum**, Beck, between East New York and Canarsie at the crossing of Fresh Creek, and in an open bushy field half a mile nearer to Canarsie, *Merriam.*—**Arctostaphylos Uva-ursi**, Spreng., and **Polygala cruciata**, L., Tottenville, Staten Island, where also **Diospyros Virginiana**, L., grows in the thickets and groves quite plentifully and apparently more spontaneously than I have seen it elsewhere in our vicinity. *W. H. L.*—**Mentha viridis**, L., and **Verbena angustifolia**, Michx., are to be found near Kingsbridge, the latter at the foot of the dolomite rocks. —**Tilia Americana**, L., var. **pubescens**, at Wading River, L. I., and **Potentilla recta**, Willd., at the Ridge, near Middle Islands, *E. S. Miller.*

56. **Imitation.**—We mentioned, § 86, Vol. I., the resemblance of the color of a yellow spider to that of the blossom in which it lay in wait. Another case of this kind has fallen under our notice. It is well known that in the centre of the white umbel of *Daucus carota*, L., there is generally one dark purple flower. In the latter part of July, we frequently found, lurking beneath this flower, a spider of very nearly its size and hue. At this season a spider of the same appearance is found there, but in a web. Perhaps there are two kinds of spiders, a web making, and a springing one. The weed is very common, and we commend the subject to our entomologists. The under side of cymes, corymbs &c. seems a favorite resort of flies and other insects.

57. **Tetramerism in Lilium auratum,** Lindl.—The case of tetramerism in *Tradescantia* reported by Prof. Martin in the last number of the Bulletin leads me to mention a similar instance in the Japan Lily (*L. auratum*, Lindl.). A plant in my garden has recently produced three flowers all of which were abnormal.

The first flower had but four divisions of the perianth, two outer and two inner, symmetrical and cruciform. The stamens were only four, alike and perfect. The ovary was quadrangular and *two-celled*, with 4 rows of seeds, and the hollow style preserved its quadrilateral character, until expanded into the stigma, which was distinctly trifid or three lined, being the only portion of the flower which showed any marks of trimerism. No rudiments of the 5th and 6th stamens could be detected.

The second flower had *five* divisions of the perianth—three outer and two inner—all somewhat twisted or distorted. The nectariferous portions strictly stellate in arrangement. Stamens 5 only and no rudiment of 6th visible. One of the 5 a little shorter than the remainder. In this case the ovary was *triangular* and *three-celled*, with the usual three lined stigma.

The third and last flower seems in all respects similar to the first, except that one of the four stamens is dwarfed and abortive.

Philadelphia, Aug. 7. JOHN H. REDFIELD.

58. **Catalpas.**—Your correspondent, Mr. Hall, alludes in the June number to catalpas growing wild on Staten Island and in Westchester Co. I would add that, on the 7th of July, I saw quite a little grove of them in full flower, at Hohokus, N. J., on the west side of the Erie R. R. They grow near, or along, a small brook, which crosses the road just beyond the station. D. S. MARTIN.

59. We can now supply those who are deficient in the first four Nos. of Vol. I.—Correspondents would save us trouble by writing on only one side of their paper.

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60. **Herbarium Suggestions.**—No. 3. *Collecting Specimens.*—For the collection of specimens, the botanist carries with him on his tramps, besides a strong knife or trowel, either a tin box (vasculum) or a portfolio containing folded sheets of thin paper in which to place the plants; indeed both the box and the portfolio are desirable.

The box will hold thick roots which he cannot on his trip find time to pare down, and fresh specimens for examination on his return home, but its capacity is limited.

A portfolio, on the contrary, will hold almost an illimitable number of specimens, and, moreover, will keep them in a fair state of preservation for a much longer time than one would naturally suppose. With two portfolios well stocked with paper, and a few driers interposed, we may make an excursion to the country occupying five days or a week, and, on returning home, find the contents but little injured by the delay.

The vasculum should be oval-cylindrical in shape, at least eighteen inches long, and with a door opening on one side. A small additional compartment opening at one end will be convenient as a lunch box, and also to contain water plants, nuts, acorns, land shells, or other objects of interest met with on the tramp. The portfolio should measure eighteen by twelve inches. It is best made simply of two stout sheets of pasteboard, not connected by a back or hinges, and covered with "enamelled cloth" to keep out moisture. To tie them together, I prefer a stout cord, or fishing-line, to india rubber bands or straps.

The young botanist soon learns that the collection of specimens does not consist in tearing off a flower with a portion of the stem and a few upper leaves. He finds it impossible to identify his species, in many cases, without having both the sterile and fertile flowers when the plant is monœcious or dicœcious, also the mature fruit, the root leaves, and even the root, all of which are component parts of the complete plant and often essential to its recognition. In many cases, the fruit may be obtained from more advanced specimens at the same time as the flower; in others, it must be collected later.

When the plant is very large, it may be cut into sections, or the root leaves way be preserved separately with only a convenient portion of the upper stem, flower and fruit.

In collecting carices, the best way is to gather a number of specimens in a little package and pass the whole through slits in one or more pieces of paper to hold them together, in which shape they are to be dried.

Some water plants are so flimsy that it is necessary to float them out in water, and secure their shape by passing a sheet of paper under them, upon which they are dried and permanently retained.

For digging up roots, a stout clasp knife will answer. Some persons prefer a trowel with its blade narrowed by grinding it off.

Still more convenient is a tool shaped like a triangular dagger. Every body knows what a three sided saw file is. Buy one of the largest size; take it to a blacksmith and have the extreme half of the file bent in a gentle curve on one of its sides until the point is

about one inch out of the true line ; grind off the teeth of the file ; retemper the blade ; put on a strong wooden handle, and get a leather case made for convenience of carriage.

Or, again, such an instrument may readily be made *de novo*. It should be, blade and handle included, about eleven inches long, and each side of the triangle where the blade joins the handle seven-eighths of an inch wide. Some of the advantages of this narrow but strong instrument are that it will follow the roots we wish to extract without cutting them, and into crevices of rocks where a broader tool could not be inserted or would be liable to break. It was the favorite instrument of that eminent botanist, Philip Barker Webb, in his Alpine excursions. [See Collector's Handbook, by the Rev. W. W. Spicer, M. A., London, 1869, p. 158.]

In the accompanying wood-cut, the blade is not quite enough curved. F. J. B.

61. **Note from Dr. Engelmann.**—I have now had Prof. Wood's specimen of *Opuntia* from Westchester Co., one from New Jersey sent by Mr. Meehan, and a third from New England, probably Massachusetts, furnished by Prof. Gray, side by side in cultivation with our Missouri and Illinois *O. Rafinesquii*. It is certainly less spiny, and sometimes the flower is smaller than in our plant, but the deep green colour, the long spreading leaves, and the bright brown bristles, especially on the older joints, on which they increase in number and length to considerable bunches, are characteristic of the plant. With them I have growing the true *O. vulgaris* sent by Dr. Schott from the banks of the Potomac and probably not found north of Chesapeake Bay, with thicker light green joints, shorter, thicker, more adpressed leaves, and small bunches of short thin greenish yellow bristles. This is the plant which is cultivated in Europe under that name and has become naturalized in Northern Italy and which I have described and figured as such in Vol. 4, Pacif. R. Reports.

Mr. H. Gillman of Detroit has found in the neighborhood of that city *Spirodela polyrrhiza* in bloom. His specimens are stouter than the Staten Island ones, and all the flowers I could examine, 5 in number, were 2-ovulate, the ovules joining at the erect funiculus, and fully anatropous, while, in that case, the single ovules were hemi-anatropous, the specimens being, as was suggested at the time, depauperate otherwise, in the structure of the anthers etc., both specimens are identical.

You may have heard that the Germans, or rather the Rhine-landers were quite excited last spring about the discovery of the aromatic *Asperula odorata* in America, an herb which is highly prized for the flavor it imparts to wine. I obtained specimens and found them to be *Galium triflorum*, Mchx. Upon my publishing this for the information of my German friends, the true *Asperula odorata* was sent to me by the editor of the N. Y. Staats-Zeitung your city, as having been found in the woods near Brooklyn. There can be no doubt of my having seen fresh specimens of the true plant. How can that be? Has it been planted and naturalized there, or

does it come from gardens? Its native localities in Germany are principally beech woods.

St. Louis, August 22. G. ENGELMANN.

MARRUBIUM, L.—**M. vulgare**, L.; not very abundant, but to be found by roadsides and on old places in all our districts; Striker's Bay, N. Y., *Ruger*.

GALEOPSIS, L.—**G. Tetrahit**, L.; "Philipsburg" *Eddy in Torr. Cat.;* Yonkers, *Pooley;* Glen Cove, *Coles;* not common.—**G. Ladanum**, L.; Yonkers, *Pooley;* very rare.

STACHYS, L.—**S. palustris**, L.: Var. **aspera**; not uncommon; N. Y., *Torr. Cat.;* not reported from Long Island.—**S. hyssopifolia**, Michx.; Flushing, Bath, &c., *State Flora;* Jamaica and Middle Island; frequent in Suffolk Co., *Allen;* Closter, plant with odor of mushrooms, *Austin*.

LEONURUS, L.—**L. Cardiaca**, L.; very common; N. Y.

LAMIUM, L.—**L. amplexicaule**, L.; common in old grounds; N. Y.

BORRAGINACEÆ.

ECHIUM, Tourn.—**E. vulgare**, L.; between Jamaica & Flushing, *W. H. L.;* Glen Cove, *Coles;* Westchester Co.; Bergen Point, *W. H. L.;* Sufferns, and common in Orange Co., *Austin*.

LYCOPSIS, L.—**L. arvensis**, L.; Babylon, *Merriam;* near Brooklyn, *Ruger;* Bergen Co., N. J.; *W. H. L.*

SYMPHYTUM, Tourn.—**S. officinale**, L.; not uncommon; in some places seems well established by streams in meadows.

ONOSMODIUM, Mchx.—**O. Virginianum**, DC.; Kingsbridge, *Torr. Cat.;* Harlem, Jamaica, *T. F. A. & W. H. L.*

LITHOSPERMUM, Tourn.—**L. arvense**, L.; Orange and Rockland Counties, *Austin;* not uncommon on Long Island, *Ruger, W. H. L.;* in neglected fields, *Torr. Cat.*—**L. officinale**, L.; plentiful at New Jersey Zinc Mines, *Austin;* near Sing Sing, *State Flora;* Hills back of Hoboken; Gowanus, *Ruger*.

MYOSOTIS, L.—**M. palustris**, Withering: Var. **laxa**; common; N. Y.—**M. verna**, Nutt.; common at Closter, *Austin;* and Hoboken, Bergen Point, Patterson &c.; High Bridge.

CYNOGLOSSUM, Rourn.—**C. officinale**, L.; N. Y.; common.—**C. Virginicum**, L.; Weehawken, Fort Lee, *W. H. L.*—**C. Morrisoni**, DC.; common.

HYDROPHYLLACEÆ.

HYDROPHYLLUM, L.—**H. Virginicum**, L.; Weehawken and New Durham swamp; Yonkers, *Pooley*.

POLEMONIACEÆ.

PHLOX, L.—**P. pilosa**, L.; Passaic, *Thurber;* Chatham, N. J. vid. § 43. —**P. subulata**, L.; Patterson, and Red Bank, N. J.: other cultivated species are often found flourishing by roadsides.

CONVOLVULACEÆ.

QUAMLOCLIT, Tourn.—**Q. coccinea**, Mœnch; "I have seen this species"

near Yonkers "growing quite freely away from cultivation," *Pooley.* [A specimen is desired, *Eds.*]

IPOMŒA, L.—**I. purpurea**, Lam.; fields, Bowery Bay, *Ruger.*—**I. pandurata**, Meyer; "On the island of New York, near Kingsbridge." *Cooper in Torr. Cat.;* Staten Island, *State Flora;* near Tottenville, also New Providence, N. J., *W. H. L.;* Closter, *Austin;* probably also in Westchester.

CONVOLVULUS, L.—**C. arvensis**, L.; in nurseries Yorkville and Flushing, *W. H. L.;* Glen Cove, *Coles;* Ravenswood and West Flushing, *Ruger;* roadsides near Closter, rare, *Austin.*

CALYSTEGIA, R. Br.—**C. sepium**, R. Br.; common; N. Y.—**C. spithamæa**, Pursh; Woodhaven, L. I., *Ruger;* Orange Co., *Austin;* 86th St., near 2nd Ave., *W. H. L.*

CUSCUTA, Tourn.—**C. inflexa**, Engelm.; Staten Island, Suffolk Co., L. I., near Peekskill, *W. H. L.*—**C. arvensis**, Beyrich; streets of New York, *W. H. L.;* in an old field now owned by James Gowdy, Esq., near Tappan, July, 1857, *Austin;* Shark River, N. J., *Forman!*—**C. Gronovii**, Willd.; very common; N. Y.—**C. compacta**, Juss.; very common in Bergen and Ocean counties, N. J., *Austin;* abundant near Lake Mohegan, Westchester Co., *W. H. L.*, and probably elsewhere.

SOLANACEÆ.

SOLANUM, Tourn.—**S. Dulcamara**, L.; rather common; N. Y.—**S. nigrum**, L.; common in waste places and about dwellings; and "on shaded rocks," *Austin;* N. Y.—**S. Carolinicnse.** L.; in various localities around Brooklyn, *Ruger and others;* also on Bergen Point, *W. H. L.*

PHYSALIS, L.—**P. Philadelphica**, Lam.; *Le Roy;* Flushing, *Allen;* N. Y.?—**P. pubescens**, L.; 65th Street and North River, also Jones's Woods, also Train's Meadow?, *Ruger;* Closter, common, *Austin.*—**P. viscosa**, L.; common; N. Y.

NICANDRA, Adans.—**N. physaloides**, Gærtn.; "Almost naturalized in vicinity of New York," *State Flora;* 79th Street, near 1st Ave., *W. H. L.;* Yonkers, *Pooley; Le Roy.*

LYCIUM, L.—**L. vulgare**, Dunal; not uncommon; Yonkers, *Pooley;* Blissville, L. I., *Ruger;* waste grounds, occasional about Closter, *Austin.*

HYOSCYAMUS, Tourn.—**H. niger**, L.; Central Park, 1862, *Austin;* road sides near Westchester, *Torr. Cat.;* Glen Cove, *Coles.*

DATURA, L.—**D. Stramonium**, L.; common; N. Y.—**D. Tatula**, L.; common; N. Y.

NICOTIANA, L.—**N. rustica**, L.; Long Island, *State Flora.*

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GENTIANACEÆ.

SABBATIA, Adans.—**S. paniculata**, Pursh; "In bog meadows, July. white" *Torr. Cat.* This is probably a mistake, possibly a white variety of some other species.—**S. angularis**, Pursh; rather common; N. Y.; abundant on Long and Stony Hills, N. J.; Closter, *Austin;* New Durham, *Le Roy;* Staten Island, *W. H. L.;* Glendale, L. I., *Ruger;* frequent in southern part of the state, *State Flora.*—**S. stellaris**, Pursh; common in salt meadows; N. Y.; sometimes white, Coney Island, Aug. 1865, *W. H. L.*—**S. gracilis**, Salisb.; "In wet meadows, New York." *Torr. Cat.*, but as nothing is said of it in the State Flora, we presume that it was a mistake, if indeed this species be distinct from the former.—**S. chloroides**, Pursh; Hackensack meadows; "Brackish bog meadows on the Island of New York, and on Long Island." *State Flora;* Harlem marshes, *Austin.*

ERYTHRÆA, Pers.—**E. ramosissima**, Pers., Var. **pulchella**, Griseb.; wet meadows, Flushing, L. I., *State Flora;* Tappan and Closter, 1857 & 1858, *Austin.*

GENTIANA, L.—**G. quinqueflora**, Lam.; "In woods near Elizabethtown, N. J., Eddy." *Torr. Cat.;* very common in Orange Co., does not occur about Closter, *Austin.*—**G. crinita**, Frœl.; "In low meadows. New York. Toteway mountains. New Jersey." *Torr. Cat.;* Closter, common, often abundant on uplands, *Austin;* Yonkers, *Pooley;* Long Island, *Ruger, Coles;* Hackensack marshes; Long Hill, N. J.; Staten Island.—**G. ochroleuca**, Frœl.; reported by *Eddy in Torr. Cat.*, but discredited by Dr. Torrey in *State Flora*, and evidently by Dr. Gray in *Manual.*—**G. Andrewsii**, Griseb.; common; N. Y.

BARTONIA, Muhl.—**B. tenella**, Muhl.; common; but not reported from N. Y.

OBOLARIA, L.—**O. Virginica**, L.; said to have been found on Orange Mt., N. J., but has not been verified.

MENYANTHES, Tourn.—**M. trifoliata**, L.; a small patch in a bog 1 mile S. E. of Closter, *Austin;* New Durham, *Le Roy;* on N. R. R. of N. J. near its junction with E. R. R. I have pointed out, § 46, that this plant is dimorphous, *W. H. L.;* Suffolk Co., *E. S. M.*

LIMNANTHEMUM, Gmelin.—**L. lacunosum**, Griseb.; "In ponds, Long Island and New Jersey, *Eddy.*" *Torr. Cat.;* Wading River, Suffolk Co., *E. S. Miller;* probably grows elsewhere within our limits.

APOCYNACEÆ.

VINCA, L.—**V. minor**, L.; Stryker's Bay, N. Y.; Ridgewood, Flatlands, &c., L. I., *Ruger;* vid. § 31, Vol. I.

62. Opuntia Rafinesquii, Engelm.—About the middle of last June I gathered some specimens of *Opuntia Rafinesquii*, on a rocky cliff of the Highlands, half a mile north of Cold Spring. One of the plants bore a flower-bud that had just commenced to open. This was laid upon the table in my room at the hotel, but for three days it persistently refused to expand its petals in that shaded place. Then a

couple of hours' exposure to the direct warm rays of the sun opened the flower in all its golden beauty. Another plant, bearing four flower-buds, was brought to Albany and placed upon a shelf just behind and above the kitchen stove. The distance of the plant from the stove-pipe was about one foot, so that it had the benefit of a pretty high temperature. Under the influence of the heat from the stove, the flowers expanded one after another, the last one unfolding the eleventh day after the plant had been taken from its native habitat. The specimen was composed of three flattened or leaf-like joints of about the usual size, one basal, the other two, terminal. These showed no signs of suffering from the want of nourishment until about the middle of July, one month after they had been gathered. At this time the basal joint began to wither, and soon after a new shoot put forth from one of the terminal joints. The drying process advanced slowly from the base upwards until the latter part of August, when it was completed so far as the original joints were concerned. In the mean time the new joint had attained a length of one foot. Its growth still continues, it being now (Sept. 15th) fourteen inches long. It is, however, excessively attenuated, being only half an inch wide at its broadest part. It is abundantly supplied with weak, soft, recurved spines about three-eighths of an inch long, and is paler in color than the original plant. It will be interesting to know how long it will continue to grow, but probably its duration will now be short, since it begins to show signs of withering toward the base.

To us who are distant from the ordinary localities of this plant and seldom have an opportunity of observing it, this behavior is interesting. It indicates the need of a high temperature to promote the growth of the plant and to cause the flowers to expand, and also shows a tenacity of life not surpassed even in the famous "Live-for-ever," *Sedum Telephium*, L. It suggests the inquiry whether, in the growth of the new shoot that has been described, the nourishment was drawn mainly from the original joints or from the air. The plant was in contact with no soil and was not once moistened with water. The growth has continued after the complete drying up of the original joints, which would indicate the air and the moisture in it as the sources of supply; but the slight withering of the base of the new shoot suggests the idea of a kind of "robbing-Peter-to-pay-Paul" process, as if the juices of the original joints had in the first place been transferred to the new shoot for its support, and now, this supply having failed, as if the juices of the base of the new shoot were passed along for the support of the apex.

It is also evident that, by placing plants with well developed flower-buds in a cool shaded place, their blossoming may be delayed for a considerable period, and the flowers may then be caused to expand, by the application of heat, at such a time as they may be wanted either for ornament or for exhibition.

Albany, Sept. 18th. CHAS. H. PECK.

M. Prillieux, quoted in *Bowdoin Sci. Rev.* p. 237, 1870, shows that when wilted flowers revive in a moist atmosphere, it is at the ex-

pense of the lower portions of the stem, with an actual loss of weight in the whole. EDS.

63. **Bees on Gerardia pedicularia, L.**—Happening to sit down to-day by what might be called a copse of Gerardia pedicularia—it was so abundant and shrubby—I was interested in observing the humble-bees who were winging about the flowers. To my surprise, I noticed that the noisy fellows did not enter the tube of the corolla, but appeared to alight upon its base. Upon closer examination I found that on every flower (there was no exception) was a perforation upon the upper side of the corolla near its junction with the calyx. Through this opening, which I presume of course is formed by the bees themselves, they appeared to derive the nectar. The air was heavy with the perfume of the flowers, and the humble bees were very numerous. In the books at this moment at my service, I find no notice of this "unkindest cut of all." I suppose, however, that it cannot have escaped the attention of the many botanists now investigating the insect fertilization of plants. After a long inspection I found no bee approaching the flower from the front—although the door stood wide open, and to human seeming the entrance was as easy. I have known of this trick of the bees—and seen it mentioned in regard to other plants—but I do not remember that the Gerardia was among them. If this is the invariable habit of the bees, can they be instrumental at all in the distribution of the pollen, or is the plant also visited in a legitimate manner by some less sneaking insect?

Providence, R. I., Sept. 3d. W. W. BAILEY.

This is the first example in our knowledge of native flowers slit by bees, and would seem to indicate that in this instance they had not been "selected" in adaptation to each other. EDS.

64. **Note from Prof. A. M. Edwards.**—A few days since, when after Diatoms, I found our garden Portulaca, the brilliant red one, out on the made ground of the marshes back of Hoboken. It was in flower and evidently carried out by the carts which were at that time transporting rubbish to make streets across the marsh. I noticed nearly a dozen plants widely scattered. May we not expect after a time to have this beautiful flower wild in this country?

My friend, Mr. M. C. Cooke of London, whose excellent "Handbook of British Fungi" is just published, is at work on American Fungi. He lately records the following on flowering plants I sent him.—**Æcidum Violæ**, DC.; **Æ. Asterum**, Schw.; **Æ. Grossulariæ**, DC.; **Æ. Dracontii** Schw.; **Trichobasis Sagittariæ**, West. The last is now recorded for the first time out of Europe.

With respect to Diatomaceæ, a year or two back I mentioned at the Lyceum of Natural History that I had found at least two, so-considered, species of *Gomphonema* on the same stipes; proving them to be but "forms" of one species. I now find in a stream on Union Hill, N. J., *Gomphonema constrictum, capitatum, acuminatum* and *cristatum*, with intermediate forms all on the same stipes. This fact, with others relating to the same subject, will be fully treated of with illustrations, in the annals of the Lyceum, and show how

puzzling it is to determine what are specific characters in these minute forms.

In the same stream is *Hydrodictyon utriculatum*, Roth.

314, W. 34th St., Sept. 23d. A. M. E.

65. **Cynoglossum officinale**, L.—I found, this last summer, one specimen of *Cynoglossum officinale*, L., growing in a vacant lot in Freehold, N. J. Another specimen was given me, obtained on the road side not far from Keyport, the donor regarding it as a curious plant which he had never seen before. I have seen *C. officinale*, both the red, and the white flowered varieties, very common and troublesome in Schoharie and Green counties, New York. I remember that the late Hon. Zadoc Pratt, of Prattsville, N. Y., used to employ men, at his own expense, each summer to cut the pest down for many miles on the road side. S. L.

66. **Nymphæa odorata**, var.—On visiting Lewes, Del., lately, I was interested to find in the cabin of the steamship, a fine group of the pink-tinted water-lilies, gathered in a pond near the pine woods between the town and Cape Henlopen, as I was told. They were quite small flowers, but of very choice and delicate perfume, white within, but the outer petals and the sepals richly tinged with rose color. It is interesting to find a well-defined locality of this peculiar and striking variety of one of our loveliest flowers.

Sept. 25th. D. S. M.

67. **Suffolk Co. Plants.**—This year I have collected about here specimens of the following plants: *Myriophyllum tenellum*, Bigelow; *M. ambiguum*, Nutt. Var. *limosum; Ludwigia sphærocarpa*, Ell.; *Oldenlandia glomerata*, Mchx.; *Eupatorium album*, L.; *E. rotundifolium*, L.; *Coreopsis rosea*, Nutt.; *Utricularia inflata*, Walt.; *U. purpurea*, Walt.; *U. resupinata*, Greene; *Sagittaria calycina*, Engelm., Var. *spongiosa; Smilacina stellata*, Desf.; *Eleocharis Robbinsii*, Oakes; *E. rostellata*, Torr.; *E. melanocarpa*, Torr.; *Rhyncospora macrostachya*, Torr.—at Middle Island; *Eupatorium pubescens*, Muhl.—at Mt. Sinai, *Mentha aquatica*, L., Var. *crispa*, Benth.—at Setauket, *Onoclea sensibilis*, Var. *obtusilobata*, Torr.

Wading River, L. I., Oct. 3d. E. S. Miller.

68. **New Stations.**—**Thymus serpyllum**, L., between Irvington and Tarrytown, on the left of the road about 400 yards this side of Mr. Merritt's place, *J. W Wood.*—**Melilotus officinalis**, Willd., a single specimen, by the rail road between Washington Heights and Manhattanville; *J. W. W.*—**Draba Caroliniana**, Walt., on Ridgewood Reservoir, near Centreville, L. I., in great abundance: it seems to flower later than *D. verna*, L., *G. M. Wilbur.*—**Anagallis arvensis**, L., on ground recently exposed in Union Square, with flowers of a fine *blue*, *G. M. W.*—On Little Snake Hill, **Muhlenbergia capillaris**, Kunth, and **Solidago rigida**, L., grow in great abundance, *T. F. A. & W. H. L.*—**Solanum Carolinense**, L., by the road leading up the hill from Weehawken Ferry.

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Local Herbarium. 3, E. 33d St.—Editor, 224, E. 10th St.

69. **Herbarium Suggestions**.—No. 4. *Drying Specimens.*—At the time of collecting specimens, and while laying them between the thin sheets of the portfolio, no special care is necessary to straighten out the leaves, and other parts of the plant. This would often be interfered with by the wind in the open field, and, moreover, the vegetable tissue is elastic and the parts of the plant will not "stay put," when arranged at this time. At the subsequent early changes of the driers, however, and especially on the first change, this matter should receive careful attention; all folds and doublings-up of leaves, petals, etc., should be removed, and the whole specimen should be arranged as nearly as possible to conform to its natural appearance before collection.

At the same time that this is done, let pieces of bibulous paper be interposed between any leaves or other portions of the plant which overlap each other, in order to prevent their moulding and hasten their drying, and change these fragments of paper subsequently when changing the driers.

The more bibulous the paper composing the driers, the better. A good quality for the purpose may sometimes be found in large paper stores, but is somewhat expensive. Ordinary newspapers, of suitable size, will answer. For the convenience of handling, the drying paper is made up into packets of about twelve thicknesses, and this is sometimes done by stiching them together, but a far better way is to unite them by two of "McGill's paper fasteners" placed about an inch from the edge of one of the sides.

When fastened in this way, the packets may be dried by placing them astride of a clothes-line in the open air, or on a string stretched across the room; and this is much better than having them lying about on the floor to be trodden on by the feet and with only one surface exposed to the air.

We should always have a large supply of packets so as to use them liberally, especially when the specimens are thick and succulent. In the latter case, also, sheets of thick pasteboard are desirable to interpose here and there between the packets to prevent a thick stem from indenting its neighbors.

For pressing plants, two boards with weights on top are best: all screw presses are objectionable, since, as the plants shrink in drying, they cease to receive the necessary pressure. This point has already been mentioned in a previous number of the Bulletin, p. 16.

In drying plants, they are retained continuously in the thin sheets of paper in which they were at first placed, but their position in the sheet is advantageously changed from time to time as soon as the plants are sufficiently dry to bear motion without crumpling.

Plants that are sticky and liable to adhere to the paper enveloping them may be sprinkled over with some inert powder, as that of Lycopodium or powdered soapstone. *(To be continued.)* F. J. B.

70. **Sesuvium pentandrum**, Elliott.—Is Sesuvium pentandrum a distinct species or only a variety of *S. Potulacastrum*, L.? To judge

from our Manuals, one would infer that its characteristics were so fickle as to make it unworthy of being regarded even as a variety of the *Portulacastrum*, for neither Gray nor Wood alludes to its existence.

Chapman recognizes both species, and evidently considers them entirely distinct; and, as they are peculiarly southern plants, his opinion would seem to be worthy of much consideration.

As the plants are seldom seen at the north, I venture to give their peculiarities:

S. Portulacastrum, L.—Leaves lanceolate and oblong, acute; flowers *pedicelled* nearly ½ an inch, stamens numerous, 15 to 60; *perennial;* Florida and northward.

S. pentandrum, Ell.—Leaves spatulate, obovate, obtuse; flowers *sessile; stamens five* in the sutures of the Calyx; *annual?* Fl.—N. C.

Chapman places an interrogation mark after *annual*, and it is important to determine what the fact may be.

It has been common for many years past to give the range of *Sesuvium Portulacastrum* "from N. J. southward," and yet I am inclined to believe that the typical form of this species with numerous and variable stamens does not occur at all upon the shore of N. J. My evidence is of course negative, but such as it is I give it. The first notice that I find of the genus in N. J. is in Nuttall's Genera of Northern Plants (1818), where it is described as *S. sessile*, DC., "leaves spathulate, flowers sessile"—which, to judge from the above description, was *S. pentandrum*. Since Nuttall, *S. Portulacastrum* has continued to be quoted from "N. J. southward." The genus is not mentioned in Torrey & Gray's Plants of the U. S.

In the summer of 1870, I discovered *S. pentandrum* at East Hampton, L. I. (Bulletin Vol. I., § 91.) Prior to that time I believe it was not known to grow north of N. J. I recently received from Mr. J. H. Redfield, of Philadelphia, a letter in answer to inquiries, from which I make the following extract:

"In the summer of 1869 my friend C. F. Parker of Camden collected at Cape May, N. J., a Sesuvium which he supposed to be of course the *Portulacastrum*, L., until an examination showed him it was the *pentandrum*, Ell. Last summer I found at Atlantic City, N. J., a Sesuvium which I also supposed to be the *Portulacastrum*, until a close examination showed it to be the other form. I am also informed that Dr. Leidy of Philadelphia has collected *S. pentandrum* at Cape Henlopen, so that, including your locality (East Hampton, L. I.), we have now four points for it, reaching from Cape Henlopen to the east end of Long Island. But the curious point in the matter is that in this region at least of our sea coast no one, so far as I can learn, has found the typical *Portulacastrum*."

Here then is a plant growing for 300 miles along our coast, invariably of one form—the pentandrum. Surely this indicates a persistency which should entitle the form to rank at least as a *variety*.

Mr. Redfield was good enough to send me specimens both from Cape May and Atlantic City. They fulfil the concise and exact description of Chapman, and correspond entirely with my own specimens from East Hampton.

J. S. MERRIAM.

71. **Notes by C. F. Austin.**—On Nov. 4th, at about noon, the day being a little blustering and cool, but clear—the thermometer certainly above the freezing point—I found on the stems of *Cunila Mariana*, L., close to the ground, flat and solid crystals of ice or frost, about ¼ of an inch in thickness and about 2 inches square, somewhat bent or curled, translucent, and striated at right angles to the stem of the plant. The plants were growing on the west side of a slate ridge. The ground was not frozen, nor was there any ice in a pond hole near by. I do not recollect seeing any thing of the kind before, yet have heard of the same thing occurring with *Helianthemum*. The frost crystals, one on each plant, were not attached to the roots but to the stem, and extended about 2 inches above the ground.

Is it generally known among botanists that, when here and there a Hemlock tree is cut from a grove where they stand close together, the stumps retain their vitality for many years? I know of a number which have continued to live at least 10—15 years. They never sprout! but continue to grow in diameter! This is caused, of course, by the natural "grafting" of the roots.

I have found isolated Sassafras roots in damp clayey soil when the stump was entirely gone; yet the roots possessed all the freshness of those from living trees!

I send two flowers of *Azalea nudiflora*, collected about two weeks ago in the woods near Middletown, Orange Co.

The Rev. S. W. Knipe, of Delaware Water-gap, Pa., has described to me a *Pogonia* found there by himself which must be *P. affinis*. He says he found only a single specimen, which he gave away, but thinks he can recover.

Negundo aceroides, Mœnch, grows along the Hackensack river, at the flats, about half a mile west of Closter.—**Geum rivale**, L., occurs on the meadows between Tappan and Piermont, a few rods east of the R. R. **G. strictum**, Ait., occurs at Closter. Closter, Nov. 14th.

72. **New Mistletoe.**—About the 20th of September last we received from Miss L. A. Millington, Glens Falls, "a few specimens of a parasitic plant" that she had found growing on *Abies nigra*, Poir. She wrote: "I believe it to be a mistletoe. I found the first specimen on a small tree in the edge of a cold peat bog in Warrensburg, Warren Co., N. Y. In a few days I found more in a similar situation in Elizabethtown, Essex Co., N. Y. Later I found it half way up the north side of a high mountain. All these places would seem to indicate a higher latitude than even Northern New York as the possible habitat of the plant. In every case the limbs of the trees infested were very much distorted. Every twig bristled with the little parasite, and some trees seem to have died from the effects of its absorption of their sap." We suspected the object to be a gall, being partly misled by the separation of the joints in the letter enclosing them, but Miss Millington afterwards wrote us, that "nine of the plants were over an inch in height and were divided into sections of perhaps an eighth of an inch each. The divisions were cylindrical, and each grew from the cleft end of the last segment. Generally each plant had one, two, or more branches. The cluster of fruit appeared in the same way from the cleft ends." We referred the

plant to Dr. Torrey, and subsequently to Dr. Gray. While awaiting their decision, we learn from Dr. Engelmann that it is a true Loranth.

This is what Dr. Engelmann says:

"Mr. Peck of Albany has made a most curious discovery, in finding on *Abies nigra* in your state a minute *Arceuthobium*, which is probably an undescribed species to be called *A. minutum*, but it has close analogies with the West Coast and Mexican *A. campylopodium*, Eng. I am just reviewing this curious genus, with plenty of material at hand—a deal of labor."

APOCYNUM, Tourn.—**A. androsæmifolium**, L.; Closter, common, *Austin;* Glen Cove, *Coles;* Yonkers, *Pooley;* Long Hill, N. J., *W. H. L.;* quite common; "Along hedges, Greenwich," *Torr. Cat.;* both sides of Harlem River, *W. H. L.;* Staten Island.—**A. cannabinum**, L.; common: Var. **pubescens**, DC.; N. Y. bank of Harlem River, near 6th Ave., *W. H. L.*

ASCLEPIADACEÆ.

ASCLEPIAS, L.—**A. Cornuti**, Decaisne; common; N. Y.; the young shoots make an excellent potherb, *Austin.*—**A. phytolaccoides**, Pursh; common and not rare; not reported from N. Y.—**A. purpurascens**, L.; common.—**A. variegata**, L.; along both banks of Harlem River and Spuyten Duyvil Creek and the adjacent country, *W. H. L.;* Bloomingdale, *Torr. Cat.;* Long Island, *State Flora;* Glen Cove, *Coles;* Closter, scarce, *Austin.*—**A. quadrifolia**, Jacq.; common but not frequent, N. Y.—**A. perennis**, Walt., (*A. parviflora*, Pursh,) is put down in R. & P's catalogue of Central Park, but we suspect erroneously.—**A. incarnata**, L.; very common; particularly the var. **pulchra**; N. Y.—**A. obtusifolia**, Mchx.; common, especially in pine woods; but not reported from N. Y.—**A. rubra**, L.; Glen Cove, *Coles;* terminus of Centreville Ave., Centreville, L. I., *Ruger;* said to have been found at South Amboy.—**A. tuberosa**, L.; common; N. Y.—**A. verticillata**, L.; "On the rocks at Passaic Falls," *Torr Cat.;* Palisades, common, *Austin;* Red Bank, etc., N. J.; Staten Island near New Dorp; West Flushing near Flushing Bridge, *Ruger;* Yonkers, *Pooley.*

ACERATES, Ell.—**A. viridiflora**, Ell.; "Dry hills and sandy fields: southern part of the State," *State Flora;* East New York, and Centreville along the aqueduct, *Ruger;* old fields, Closter, 1858, *Austin;* New Dorp, Staten Island, *W. H. L.*

VINCETOXICUM, Mœnch.—**V. nigrum**, Mœnch; Flatbush, *Ruger;* escaped and running wild near the road to Vandeveer's mill, Flatlands, *Merriam.*

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

OLEACEÆ.

LIGUSTRUM, Tourn.—**L. vulgare**, L.; quite common and naturalized; N. Y.; near Stanhope, Morris Co., N. J., thoroughly wild, *Austin;* Prospect Park, *Merriam;* &c.

FRAXINUS, Tourn.—**F. Americana**, L.; common; N. Y.—**F. pubescens**, Lam.; low grounds along streams, very common about Closter; and extremely variable in size and shape of fruit and leaves, branches and leaves often quite glabrous, *Austin;* Central Park, scarce, *R. & P.;* frequent in adjoining parts of N. J., *State Flora;* banks of the Sawmill R., Yonkers, *W. H. L.*—**F. viridis**, Mchx. f.; Central Park, *R. & P.;* we have no other authority for this species in our vicinity.—**F. sambucifolia**, Lam.; common, *Austin;* Yonkers, *Pooley;* Glen Cove, *Coles;* Harlem River, N.Y., *W. H. L.*

ARISTOLOCHIACEÆ.

ASARUM, Tourn.—**A. Canadense**, L.; not uncommon, not reported from N. Y.

ARISTOLOCHIA, Tourn.—**A. Serpentaria**, L.; Closter, Weehawken, &c., quite frequent; Long Hill, N. J., Tottenville, Staten Island, Inwood, N. Y., *W. H. L.;* near the toll gate, beyond Jamaica, *Merriam;* Glen Cove, *Coles;* vid. § 6, Vol. I.

PHYTOLACCACEÆ.

PHYTOLACCA, Tourn.—**P. decandra**, L.; common; N. Y.; very common in recent clearings, *Austin;* not confined to low grounds, *Austin, W. H. L.*

CHENOPODIACEÆ.

CHENOPODIUM, L.—**C. album**, L.; very common; N. Y.—**C. glaucum**, L.; Hoboken, and N. Y., *Austin;* Brooklyn, *Merriam;* various stations about Brooklyn, and 63d and 64th Streets, near Lexington Ave., *Ruger*, vid. Vol. I. § 82, Vol. II. § 37.—**C. urbicum**, L.; Closter, &c., *Austin;* Coney Island; Staten Island; Newark.—**C. murale**, L.; Vanderbilt's Landing, Staten Island, *W. H. L.*—**C. hybridum**, L.; Closter, common, *Austin;* Fordham, near High Bridge, *W. H. L.;* generally common, *State Flora.*—**C. Botrys**, L.; abundant in waste ground and unimproved streets, N. Y.; and Brooklyn, *Merriam;* and between Brooklyn and Coney Island.—**C. ambrosioides**, L.; very common on N. Y. Island, and in the vicinity: Var. **anthelminticum**; roadsides near N. Y., *State Flora, Ruger.*—**C. multifidum**, L.; formerly found on N. Y. Island but not recently.

BLITUM, Tourn.—**B. maritimum**, Nutt.; Long Island, Hoboken, *State Flora, Torr. Cat.*—**B. capitatum**, L.; "In fields, New York," *Torr. Cat.;* in an orchard, Orange, N. J., many years since, *W. H. L.*—**B. Bonus-Henricus**, Reichenbach; Glen Cove, *Coles*; along the village street, East Hampton, L. I., *Allen, Merriam.*

73. Herbarium Suggestions.—No. 4. *Drying Specimens, continued.*—The frequency of changing the driers is a matter of much importance. There are two facts which the botanist should constantly

bear in mind: 1st, the more rapidly plants are dried, the better they will retain their colors; 2nd, the first two days that plants are in the press are of more importance than all the subsequent time.

Two or even three changes of the driers during the first 24 hours will accomplish more than a dozen changes after the lapse of several days. The most perfect preservation of the beautiful colors of some orchids which I have ever seen, was effected by heating the driers and changing them every two hours during the first day.

For less delicate specimens, two changes the first day, one change a day for three or four days after, and subsequent changes at gradually increasing intervals, will suffice. It is often difficult to tell whether a plant is thoroughly dried or not. This may sometimes be ascertained by pressing it for a moment against the cheek. If the cheek feels cold on its removal, the plant is still moist.

Other methods of drying plants are sometimes employed, but are less convenient or less adapted to a large number of specimens.

One is to place the plants and driers between sheets of wire gauze protected on the edge with a rim of stout iron wire, and hang the whole in the sun and wind, without any subsequent change. Only a small package of plants can be dried in this way.

Another is to abstract the chief part of the moisture of the plants at the outset, by placing them in some convenient vessel, and sprinkling or sifting dry and warm sand over them; at the end of a day or so, they are to be removed from the sand and put in the press.

I had nearly forgotten one point of the first importance: do not neglect, at the earliest opportunity, to insert in each sheet a label bearing the name of the plant, if already made out, but, at all events, the place and date of collection, together with notes of the locality in which it was found. This is often left, to the subsequent sorrow of the botanist, until these particulars have escaped the memory, and half the value of the specimen has consequently been lost. F. J. B.

74. **Spirodela polyrrhiza.**—Prof. Hegelmayer of Tübingen has just given us in the *Botanische Zeitung* of Sept. 22 & 29, 1871, a most interesting addition to the very thorough monograph of Lemnaceæ, published by him three years ago, by his account of the organs of fructification of Spirodela polyrrhiza from the specimens received from Mr. Leggett, and has illustrated it thoroughly by numerous figures.

He premises it by stating that, according to his present lights, he must consider the organs of the flowering Lemnæ as constituting single hermaphrodite flowers, consisting of a pistil and two lower stamens, the third upper one being regularly abortive, and subtended by a bract (what was called the spathe.)

He then minutely reviews the flowering organs of our Spirodela, which are in the bud surrounded and enveloped by the membraneous bract, bearing crystal and pigment cells, and which opens by a small apical slit. The second or posterior stamen often

remains undeveloped. The anther cells are arranged not above one another as in other Lemnæ, but behind one another or obliquely lateral, as had been stated before. The filaments show spiral vessels, especially visible in the connective.

The ovules he finds single or in twos, (in the Detroit plant they were always in twos.)

He then gives a minute account of the structure of the ovules and of the horizontal seed. The seeds are single, in one specimen only he found two immature but regularly developed seeds. In all the specimens examined they were covered with epidermis, and therefore smooth; but he supposes that in a later stage the epidermis disappears and then the seed might have a ribbed appearance, much like the other Lemnæ in which the epidermis is more easily destroyed and thus the peculiar surface markings brought to light. The endosperm is thicker than in other Lemnæ—there is also a difference in the slit of the embryo.

In a systematic point of view the structure of the anthers would fortify the genus Spirodela, which altogether proves to be the most highly developed of all Lemnaceæ, if the second species of the genus, Spirodela oligorrhiza, should exhibit the same character; but the flowers of this are to him unknown.

The number of ovules proves of little importance as a generic character. Not only that here one as well as two occur—he has now also become acquainted with a form from different parts of Australia, which, in most respects very similar to Lemna minor, shows regularly two ovules, and which on that account he had formerly thought to be allied to L. gibba, but which he now is inclined to consider distinct from both L. minor and L. gibba, and names *L. disperma*. G. E.

75. **Arceuthobium.**—We have received further particulars about this interesting discovery. Mrs. Millington writes, Nov. 23: "It seems curious that the plant I found should be so nearly the one I set out to find last April when I first saw the Nevada parasite. It occurred to me then that something of that kind might cause the unhealthy look and the decay of the Black Spruce, so well-known among the Adirondacks. Almost the first Abies that I had an opportunity to examine was literally covered with that curious growth, then quite small and without fruit. Some botanist, who has an opportunity to examine the *Abies balsamea*, might possibly find it infested with the same parasite. Many trees present the same appearance as the A. nigra when the parasite is present." Again, in a letter dated Dec. 12th, she writes: "I received a very interesting letter from Dr. Engelmann, and, to secure some winter specimens that we might study its habits more at large, I went myself to Warrensburg. I got specimens from twenty different trees, large and small. About 75 per cent of all the spruces were infested. Groups of large trees forty feet high were dead, and bore the peculiar marks of the parasite. Nothing but the depth of the snow (twelve inches) prevented my looking farther among the A. balsameæ, where I expect to find it yet. The location is on the east side of the plank road, two miles and a half from Warrensburg village, and half a

mile south of the toll-house. It is known as Dr. McNutt's Marsh, and is about 60 rods from the road."

"All the plants I send you are young ones: the question is, did they grow from this year's seed? You will, on examination, find tiny red points in the bark of this year's wood, and observe that the largest plants are in the older wood, and that none of them are the plants of last summer's growth."

76. **Note from Dr. Gray.**—Mr. Peck of Albany sent me, early last autumn, a good specimen of a parasite on *Abies nigra*, asking what it was. I replied that it was the female of an *Arceuthobium*, most likely *A. campylopodum* of Engelmann—to whom I advised he should send specimens; that the discovery was an interesting and unexpected one. As Dr. Engelmann seems to have been supplied with much smaller and less developed specimens than I was, I venture to suspect that he will yet conclude that it is his *A. campylovodum*.

The curious thing about the discovery is: 1st, that it should not have been detected before; 2nd, that it should, after all this overlooking, be found during the same season by two persons, in three different counties, and so abundant as to disfigure or even to destroy the trees it infests.

I did not answer your communication at once, because I knew that the plant had already been brought to the knowledge of the Torrey Club, and because I sent it at once, with the specimen, to Dr. Engelmann, who has only now returned it.

December 4th, 1871. A. G.

77. **Sesuvium.**—Mr. Merriam informs us that Dr. Gray has written him as follows: "No doubt your Sesuvium is S. pentandrum, and that *that* is a good species. I have no specimens of S. Portulacastrum from the Northern States. Equally I have *now* no doubt but that *S. sessile*, Nutt. (not DC.), is this *S. pentandrum*, as you say in the Bulletin."

78. **New Stations.**—**Erodium cicutarium**, L'Her.; Wallabout Swamp, on Nostrand Ave., Brooklyn, nearly opposite the hat factory.—**Lysimachia vulgaris**, L.; West Flushing.—**Pedicularis lanceolata**, L.; New Lots and Centreville, L. I.—**Origanum vulgare**, L.; Gowanus, Centreville, &c., L.I.—**Nicandra physaloides**, Gærtn.; Woodhaven, L.I. M. Ruger.

79. **Notes and Queries.**—I am desirous of obtaining peculiar forms of *Lechea*, especially from the south, and more particularly from Florida and the West Indies. I shall feel under much obligation to any one who will assist me by loan, exchange, or otherwise.

Wm. H. Leggett, 224, E. Tenth St., N. Y.

H. H. Babcock, 11, 18th St., Chicago, Ill., has for exchange plants from the vicinity of Chicago.

Those who have experience in the examination of plants would do a good service by imparting the results. What, for example, is the best mode of getting at an embryo enclosed in horny albumen?

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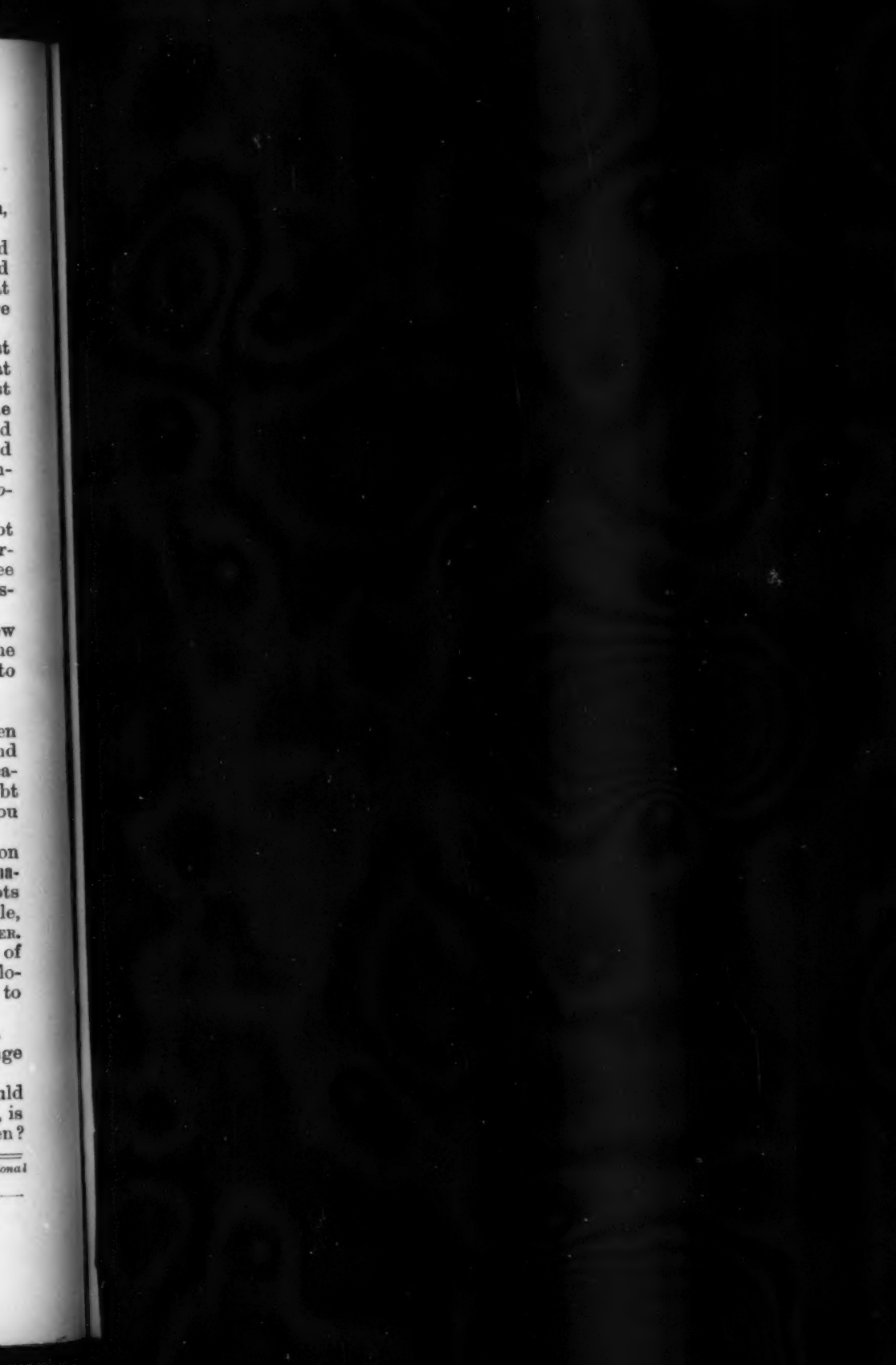
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